THE ECOLOGY AND TAXONOMY OF SOME ANGOLA BIRDS

(Based on a collection made in 1957)

BY

B. P. HALL

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INTRODUCTION

SINCE Bocage published the *Ornithologie d'Angola* in 1881 no major work has appeared on the birds of the country as a whole and even the vast collection amassed by Ansorge in the early part of the century has never been fully written up. Thus little knowledge has been available to the student on the ranges and habitats of the many forms endemic to Angola although the discoveries of such collectors as Rudyerd Boulton, Gerd Heinrich and Rudolf Braun in the past twenty-five years have shown it to be a country of exceptional interest. This interest lies not only in its endemic species but also in that it is a meeting place for the avifauna of West Africa, found in the lowland forests of the west; of South West Africa, found in the coastal thorn country and desert; of East Africa, in the woodlands of the centre and east. There are also some representatives of a specialised montane avifauna in the Bailundo highlands.

Chapin's *Birds of the Belgian Congo* has done much to remedy the lack of knowledge but, of necessity, deals only briefly with Angola birds, and only with those that are found also in the Congo. In the British Museum workers have been handicapped by the paucity of specimens from Angola as well as by the lack of literature on the country, and it was with a view to filling some of the gaps in the National Collection and with learning something of the habitats and ecology of the birds, that I decided to make a collecting trip to Angola in 1957.

This paper is intended to correlate the birds that were collected with the type of country and vegetation in which they were found. For this purpose all specimens have been listed in four "Tables of Specimens Collected," divided according to their habitats, rather than in a systematic list. The main vegetation regions of the country and the particular vegetation at each camp are described and discussed in relation to the distribution of the species throughout Africa and with regard to their possible bearing on the progress of speciation. Additional notes have been made on breeding seasons and on field habits and systematics where these have proved of particular interest. The usefulness of these discussions is necessarily limited by the lack of personal knowledge of the country outside the route of the expedition and the paper as a whole is intended only to supplement the work that is being done concurrently, chiefly in the United States, on other collections from Angola, so that finally there may be a real understanding of the place of the Angola avifauna in African ornithology.

Acknowledgments

For the expedition I was fortunate to have the support of the Zoology Department, British Museum (Natural History), and in being able to get together an Anglo-American party following the Pan-African Ornithological Congress in Livingstone in July 1957. The American members were Mr. and Mrs. Donald S. McChesney, Research Associates of Cornell University. Their chief interest was in photography and sound-recording of bird songs, although they took an active interest in the specimens collected during the time they were with the rest of the expedition:

this time was unfortunately very limited as private affairs compelled them to return to the States on 2nd September. Mr. John Williams, from the Coryndon Museum, Nairobi, came to take charge of the skinning ; he also had to leave about the same time having been unluckily dogged by ill-health throughout. The chief collectors were Lt.-Gen. Sir Gerald Lathbury, K.C.B., D.S.O., M.B.E., and Mr. A. L. (Tony) Archer from Nairobi, who brought his Land Rover and Owaka and Ali as mechanic and cook. John Williams and I also collected when time allowed from skinning. During their time in Angola Mr. McChesney engaged Mr. Mario Pirelli from Luanda as an interpreter and guide to the country.

The trustees of the Percy Sladen and of the Godman Trusts made grants towards my travelling expenses and the British share of the expedition, and a grant was made from the Purchase Grant of the Museum. Further expenses were born by Mr. McChesney, General Lathbury and myself, Mr. McChesney also being responsible for the financing of the American share. The Committee of the Bird Exploration Fund contributed with the loan of a gun and the gift of some ammunition.

In Livingstone Mr. Rudyerd Boulton gave valuable advice on the country and habitats of the birds which was of great assistance in planning our route. In Angola we received unfailing help from all Government officials with whom we came in contact, and also helpful advice on the birds of the area from Mr. R. Braun at Sá da Bandeira.

Since returning to the Museum I have received great assistance in working out the collection from colleagues in the Bird Room and Mr. A. W. Exell, in the Botany Department, and through loans and letters from many ornithologists including Dr. Dean Amadon, Professor J. Berlioz, Mr. C. W. Benson, Mr. P. A. Clancey, Dr. H. Friedmann, Mr. J. C. Greenway, Mr. R. E. Moreau, Prof. N. E. Collias, Miss M. Patterson, Captain C. R. S. Pitman, Dr. A. L. Rand, Prof. H. Schouteden, Dr. W. Serle, Mr. R. H. N. Smithers, Prof. E. Stresemann, Mr. M. P. Stuart Irwin, Mr. M. A. Traylor, and Mr. C. M. N. White. Mr. Smithers also kindly had some birds skinned for me in Bulawayo which had been preserved in salt. Mr. B. C. Lack, of the Metereological Office, supplied rainfall figures. Mr. C. W. Mackworth-Praed and the late Captain C. H. B. Grant have allowed me full use of the manuscript of the second part of the African Handbook of Birds covering Southern Africa. Dr. G. Rudebeck has supplied me with a list of birds collected on the Visser-Transvaal Museum Expedition to Angola in 1956, and allowed me to examine specimens. Commander A. M. Hughes and Mrs. M. Gull have drawn the maps.

To all these people I am very much indebted, but above all to my companions for their contributions in their respective spheres, especially to the two collectors who were responsible for the unusually large variety of birds collected in two months.

Deposition of Specimens Collected

In all 980 specimens were obtained of 306 species, including the second and third known specimens of *Prionops gabela*. The majority were skinned on the spot, but some less important were preserved in salt for eventual treatment in the Museum (see Ibis, 1959 : 254), and fifty-four were preserved in spirit as anatomical specimens.

At the request of the Portuguese authorities a number of duplicate specimens have been sent to the Museum in Luanda. A proportion of the remainder, mainly from eastern districts, are in the American Museum of Natural History, a small number in the National Museum of Southern Rhodesia, Bulawayo, and the bulk in the British Museum. The photographs and sound-tracks have been deposited at Cornell University.

ITINERARY

The expedition entered Angola from the Belgian Congo along the line of the Benguela railway at Dilolo. It had been hoped to do some exploratory work in the little known areas of the east and south-east, but Williams' illness and shortage of time made this impossible. Thus little new ornithological ground was broken except in some parts along the main road from the frontier to Nova Lisboa, and energies were mostly concentrated on seeing as many different types of country as possible, and in filling the known gaps in the British Museum collection from such well-known districts as Mt. Moco, Sá da Bandeira, Chingoroi and Gabela.

A full list of camps follows with the altitudes and dates so that these may be correlated with the Tables of Specimens collected at the different camps :—

Date of arrival	Locality of camp	Lat.	Long.	Alt.
27th July	Luau R. Angola/Congo border 7 m. E. of Texeira de Souza	10.42 S.	22.12 E.	3,600′
1st August	Luacano	11.16 S.	21.38 E.	3,550′
3rd ,,	Lake Dilolo	11.30 S.	22.00 E.	3,500′
6th ,,	Luacano	—	—	—
7th ,,	28 m. W. of Vila Luso	11.47 S.	19.52 E.	4,400′
8th ,,	5 m. W. of Munhango	12.12 S.	18.42 E.	4,700′
9th ,,	5 m. W. of Vila General Machado	12.03 S.	17.30 E.	4,800′
10th ,,	Vouga	12.11 S.	16.47 E.	5,700′
12th ,,	5 m. E. of Nova Lisboa	12.44 S.	15.47 E.	5,500′
14th ,,	Mt. Moco	12.27 S.	15.10 E.	6,000–8,000′
25th ,,	5 m. N. of Vila Flor	12.41 S.	15.31 E.	5,500′
27th ,,	Caconda	13.43 S.	15.06 E.	5,200′
28th ,,	Quipungo	14.49 S.	14.34 E.	4,400′
29th ,,	Sá da Bandeira	14.55 S.	13.30 E.	5,600′
30th ,,	Leba	15.04 S.	13.16 E.	5,800′
4th September	Cahinde (Tampa)	15.30 S.	13.27 E.	2,500′
6th ,,	5 m. S.W. of Sá da Bandeira	—	—	6,600′
7th ,,	Chingoroi	13.37 S.	14.01 E.	3,300′
11th ,,	12 m. S.E. of Benguela	12.35 S.	13.25 E.	S.L-500′
13th ,,	60 m. N. of Lobito on Novo Redondo road	—	—	*c.* 800′
14th ,,	20 m. N.E. of Novo Redondo on Gabela road	—	—	*c.* 1,000′

Date of arrival	Locality of camp	Lat.	Long.	Alt.
15th ,,	Cuvo R. 12 m. S.W. of Gabela	10.48 S.	14.20 E.	2,500′
20th ,,	40 m. S. (by road) of Mumbondo	10.09 S.	14.15 E.	1,000′
25th ,,	Calulo	10.00 S.	14.53 E.	3,300′
27th ,,	Quimberima plantation 40 m. S.E. of Calulo	—	—	3,700′
Other localities by roadside:				
9th August	Coemba, 40 m. W. of Munhango	—	—	—
	Saiangikilo R. 16 m. W. of Munhango	—	—	—
13th and 25th ,,	Quipeio, 25 m. N.W. of Nova Lisboa	12.26 S.	15.30 E.	*c.* 6,000′
7th September	Quilengues, on Sâ da Bandeira-Chingoroi road	14.00 S.	14.00 E.	*c.* 3,900′

VEGETATION

Main Vegetational Regions

All the main vegetation regions of tropical Africa are represented in Angola with the exception of extensive marshlands of the "Sudd" type. These regions are indicated on the following map which has been adapted from the Vegetation Map of Africa published on behalf of l'Association pour l'Étude Taxonomique de la Flore d'Afrique Tropicale with the assistance of U.N.E.S.C.O. (Oxford University Press : 1959), with slightly more detail in those districts covered by the expedition. The regions can be summarized as follows :—

(a) *Savannah Woodland*

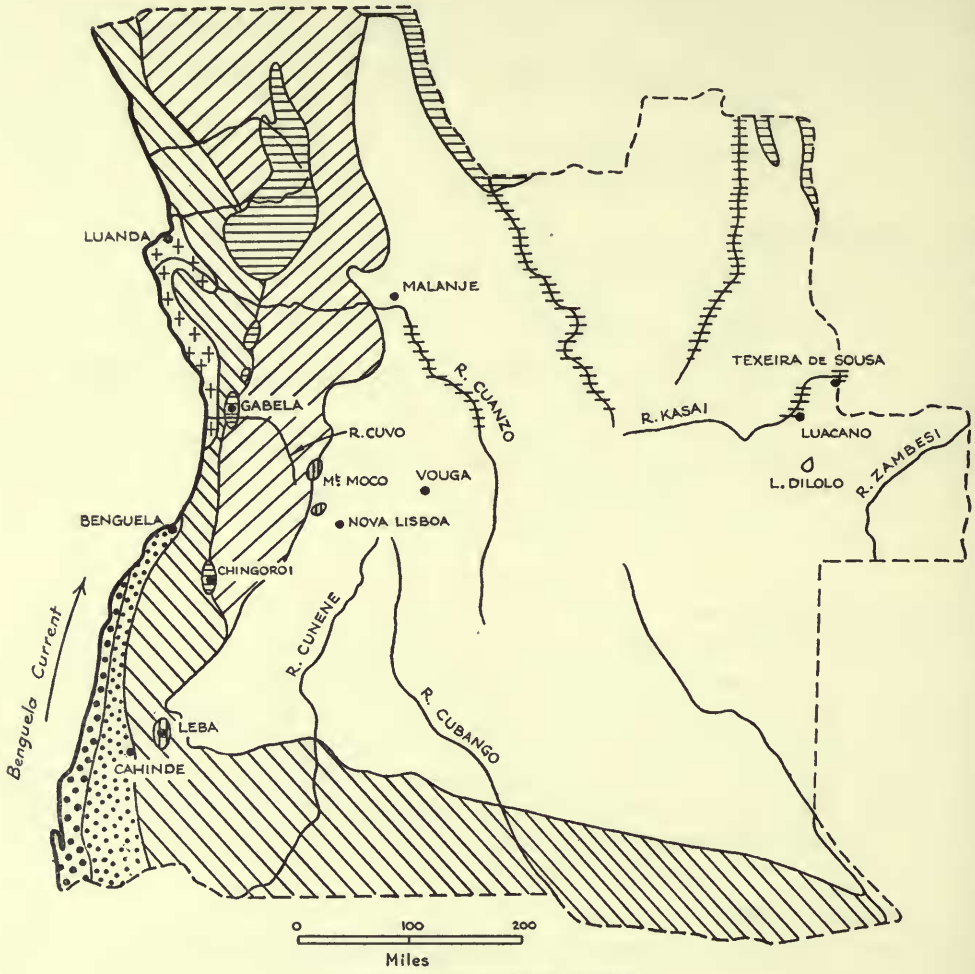
In eastern and central Angola this is largely of the *Brachystegia* and *Isoberlinia* type and is extensive, being found even up to 7,000 feet on the mountain slopes. For convenience it will be referred to throughout as Brachystegia woodland.

In the west, in a narrow strip along and below the escarpment, there is rather richer vegetation, shown on the map as relatively moist types of savannah woodland. In this strip Brachystegia no longer predominates, there is more variety and Baobabs are common.

(b) *Grassland*

Patches of grassland often very flat and poorly drained are interspersed throughout the Brachystegia woodland. In the west there is more open country with many wide stretches of rolling grassland in which other vegetation is confinen to thickets and clumps, mostly in the river and stream valleys.

VEGETATION MAP OF ANGOLA



KEY TO VEGETATION MAP

- Montane Forest
- Escarpment or Riverine Forest
- Mixed Woodlands and Savannahs relatively moist types
- Mixed Woodlands and Savannahs, relatively dry types with abundant Acacia
- Woodlands and Savannahs with abundant Brachystegia
- Grass Steppe, Luanda type
- Semi-desert
- Desert

(c) *Semi-desert and Thorn*

In the south and south-west the acacia thornveld of the Kalahari and South West Africa extends into Angola and along the coastal strip to the latitude of Lobito. Here the sandy plain gives way to the rolling grassland and the predominance of acacia diminishes northwards to Luanda.

(d) *Desert*

The Namib desert of South West Africa extends in a narrow strip up the coastal plain into southern Angola, merging into the semi-desert or scrub a little north of Moçamedes and in the foothills towards the base of the Chela escarpment.

(e) *Forest*

The forests of Angola, excluding Cabinda in which true tropical rain forest is found, are of three types. True montane forest of great antiquity is found in pockets on the highest mountains of the Bailundo highlands such as Mt. Moco and Mt. Soque. It was also fairly extensive on the Mombolo plateau when Boulton collected there in 1931, but we were informed in Nova Lisboa that it has largely been cut down. Remnants of forest on the Chela escarpment may also prove to be relic montane type.

The lowland forests are of more recent origin and can be divided into what might be termed escarpment forest, and gallery or riverine forest. The escarpment forest is found between 1,000 feet and 3,000 feet in sometimes extensive patches below or on the face of the escarpment in areas which combine the high summer rainfall of inland districts with high all-the-year-round humidity and frequent mists due to the meeting of the cold waters of the Benguela current with the warm equatorial waters.

Gallery forest is found in patches along the rivers of the north and east, and also along some of the west coast rivers below the escarpment.

Vegetation at Camps

The expedition traversed all the main vegetation regions with the exception of the true desert and it seems useful to discuss in more detail the country at each camp, and on the road between. The camps and districts discussed have been numbered to correspond with the columns in the Tables of Specimens collected (pages 379–391).

(1) *Luau River*

Most of the collecting was done in the narrow strip of riverine forest or the Brachystegia woodland around. There was no open grassland but some clearings in the woodland and the edges of cultivation.

(2) *Luacano Area*

There was some riverine forest and Brachystegia woodland, but the camp was chiefly notable for the wide flat treeless plain crossed by damp ditches which extended some miles east and south of Luacano village.

(3) *Lake Dilolo*

Most of the collecting was done in the grassy swamps and reed-beds on the border of the lake near the Government Rest House, and a little in some woodland a few miles to the west. There was no time to explore the extensive possibilities of the lake, the largest in Angola, or to organize the use of native dugout canoes which would be the most suitable transport for the purpose.

(4) *Roadside Localities between Luacano and Vouga*

All camps were made in Brachystegia woodland but this was interspersed with grassy dambos similar to the grassland at Luacano in their flatness and lack of bushes, but not so extensive. (Plate 5, B).

(5) *Vouga*

The grasslands here differed in being extensive undulating plains with moist marshy patches in the valleys and some patches of scrubby bushes. A small patch of stunted woodland with some bushes and cultivation surrounded the camp.

(6) *Nova Lisboa area*

This area was predominantly Brachystegia woodland with some grassy clearings and cultivation.

(7) *Foothills of Mt. Moco*

The lower slopes were covered with Brachystegia woodland with thick tangled grasses in the stream beds, and grassland and cultivation below.

(8) *Mt. Moco, over* 6,000 *feet*

Brachystegia was found up to 7,000 feet on some slopes and montane forest was limited to patches lining precipitous gullies at the head of the streams on the upper slopes, descending to about 6,800 feet on some of the eastern and southern slopes. The forest trees were nowhere very tall or very dense but mostly of evergreen species totally different from the woodland types and with tangled undergrowth beneath. The bare slopes above the woodland and away from the forest were rocky and grassy with scattered aloes and small scrub, with numerous plants in flower.

(9) *Vila Flor, and localities on Luimbale-Nova Lisboa road*

This area was predominantly Brachystegia woodland with some grassy clearings and cultivation.

(10) *Caconda and Caconda-Quipungo road*

This country was similar to Vila Flor until a change was noted about 40 miles south of Caconda where the trees appeared much the same size and form but were notably barer of leaves. This change would not have been worthy of note except that it corresponded with some change in the bird life, four species being met within

a few miles which had not hitherto been encountered, namely, *Neocichla gutturalis*, *Thamnolea arnotti*, *Turdoides jardinei* and *Eurocephalus anguitimens*.

(11) *Quipungo*

The first patch of thorn country was encountered here, with some grassy clearings and a small patch of Brachystegia.

(12) *Sá da Bandeira and the roads to Quipungo and Chingoroi*

This was very mixed country with thorn and Brachystegia alternating, and with richer and more varied vegetation northwards towards Chingoroi as the road descends to 3,000 feet. An overnight camp at Sá da Bandeira was made on top of the escarpment above the town and some collecting was done in the stunted Brachystegia on the slopes and the rocks above.

(13) *Leba and Humpata-Jau road*

The camp at Leba was in an area of mixed vegetation. It was situated about a mile inland from the edge of the Chela escarpment at a point where a stream cuts its way through a gorge in a series of waterfalls down 3,000 feet to the foothills and plains at Capangombe. Immediately around the camp was an area of tangled bush and thorn full of aromatic shrubs; in some clearings by the river were remnants of forest and a patch of forest was found by the river near the foot of the escarpment.

The rocks and fringing trees of the escarpment were the typical habitat of *Xenocopyschus ansorgei*, and in one place along the edge was an extensive patch of tangled evergreen bush, difficult to penetrate, which contained few birds. Other slopes above the river were covered in stunted Brachystegia, and on the plateau running back from the escarpment patches of Brachystegia were mixed with patches of thorn and occasional grassy or cultivated clearings. (Plate 5, A).

In such mixed country it was not always easy to define the habitat of specimens collected and this should be borne in mind when consulting the Tables.

Some collecting of larks and pipits was done on open grassland on the Humpata-Jau road, and a party of water-birds was seen at a small lagoon in the centre of these grasslands.

(14) *Cahinde area*

Included in this area, is the road down the escarpment where the slopes are lined with stunted Brachystegia and Mopane. This gives way at the bottom of the escarpment among the foothills to typical semi-desert country of mixed thorn and *Terminalia* or *Combretum*, with the Mopane becoming less common westwards towards the desert. An excursion was made westwards for fifty miles from Cahinde without coming out of the foothills into true desert.

(15) *Chingoroi*

The patch of forest in which most of the collecting was done might be described as part riverine and part escarpment being associated with a stream, but more

extensive than the usual riverine strips. Other birds were collected in reeds and grasses bordering the stream.

(16) *Benguela area* (3–15 *Miles South-east*)

The descent from Chingoroi to the coastal strip behind Benguela was gradual and through mixed country which gave way on the coastal plain to typical thorn bush resembling the Kalahari and the Vornamib. It was more open than the country at Cahinde with more grassland and acacia and no Mopane, and only broken by rocky kopjes.

(17) *Lobito—Novo Redondo-Gabela road*

The road to Novo Redondo wound over the rolling grasslands mentioned in the discussion on vegetational regions. Thorn bushes and Euphorbia were found on the hill-sides and frequent clumps of dry tangled thickets similar to those found on above the escarpment at Leba. Baobabs were common. Between Novo Redondo and the foot of the escarpment there were clumps of richer vegetation bordering streams and lagoons, but no collecting was done here.

(18) *Cuvo River, 12 Miles SW. of Gabela*

All collecting from this camp was done within three or four miles of the river and in the forest on the face of the escarpment, which is again precipitous at this latitude, though not to such a degree as at Leba. The forest is largely underplanted with coffee and the original undergrowth destroyed, but there was an uncleared patch in which we collected not far from the camp. The forest ended abruptly at the top of the escarpment before the town of Gabela and also a few miles further south along the road beyond our camp. The few species listed as collected in grassland in this camp were from tangled grass near the river's edge or a patch of disused cultivation in a forest clearing.

(19) 40 *Miles South of Mumbondo and road to Luanda*

Very little collecting was done on the road from Gabela to Luanda via Mumbondo and Muxima, but it was noteworthy for finding *Prionops gabela* well outside the forest area at the foot of the escarpment in a patch of mixed bush and woodland between cultivated clearings.

(20) *Calulo and Quimberima* (40 *Miles SE. of Calulo*)

After the main expedition was over I collected a few birds at Calulo which is situated in open grassland with some patches of stunted Brachystegia and bush, and on the plantation of Mr. and Mrs. O. Kroel at Quimberima, where they very kindly put me up for two nights. The Quimberima birds were collected in a tiny patch of forest edging a stream and bordered by Brachystegia.

Photographs

Photographs and further descriptions of many of the localities and types of vegetation discussed will be found in Lynes' two papers on his expeditions to Angola (1933 and 1938), in Heinrich's recent paper (1958), and in Gosswelier & Mendonca (1939).

TABLES OF SPECIMENS COLLECTED

Key to Tables

Species which appear in more than one table, or which are referred to in the Systematic and Field Notes, have cross references in the left hand columns.

Collecting localities are grouped into districts for estimate of breeding dates and numbered as follows :

1. Luau R.
2. Luacano area : Texeira de Sousa—Luacanó road.
3. Lake Dilolo.
4. Vila Luso—Vouga road.
5. Vouga.
6. Nova Lisboa area.
7. Foothills of Mt. Moco (6,000 feet).
8. Mt. Moco over 6,000 feet.
9. Vila Flor : Quipeio : Nova Lisboa—Luimbale road.
10. Caconda : Caconda—Quipungo road.
11. Quipungo.
12. Sá da Bandeira : Sá da Bandeira—Quipungo road : Sá da Bandeira—Chingoroi road.
13. Leba : Humpata—Jau road.
14. Cahinde : road down escarpment : Cahinde—Moçamedes road (40 miles).
15. Chingoroi.
16. Area 3—12 miles S.E. of Benguela.
17. Lobito—Novo Redondo—Gabela road.
18. Cuvo R., 12 miles S.E. of Gabela.
19. Forty miles south of Mumbondo.
20. Calulo : Quimberima (40 miles S.E. of Calulo).

Unsexed specimens are listed by number only (i.e. 1 ♂, 2 ♀, 1).
Specimens in spirit are listed in brackets.
Young birds not fully grown are listed as " juv."
Young birds fully grown are listed as " imm."
" Summer " breeding season indicates any month between November and May.

TABLE I.—*Birds*

	Other references		Eastern Districts				Central		
	Tables	Syst. Notes	1	2	3	Breeding	4	5	6
4 Francolinus finschi	—	*	—	—	—	—	—	—	—
6 coqui angolensis	—	—	—	—	—	—	—	—	1 ♂
15 Chrysococcyx klaasi	—	—	—	(1 ♀)	—	—	—	—	—
16 Cuculus c. cafer	—	—	—	—	—	—	1 ♂	—	—
19 Poicephalus meyeri damarensis	II	—	—	—	—	—	—	—	—
24 Coracias spatulatus	—	—	—	1 ♂	—	Summer	—	—	—
25 Halcyon chelicuti	—	—	—	(1)	—	—	—	—	—
28 Merops nubicoides	—	—	—	1 ♂	—	? Sept.	—	—	—
29 Melittophagus pusillus meridionalis	—	—	—	—	—	—	—	—	—
30 Dicrocercus h. hirundineus	—	—	1 ♂	—	(1)	Summer	—	—	—
31 Tockus p. pallidirostris	—	—	1 ♂	—	—	—	—	—	—
34 Glaucidium perlatum licua	—	—	—	—	—	—	—	—	—
37 Semeiophorus vexillarius	—	—	—	—	—	—	—	1 ♂	—
40 Caprimulgus pectoralis fervidus	—	—	3 ♀	—	—	Summer	—	—	—
45 Colius striatus congicus	—	*	1 ♂	—	—	? Aug.	—	—	—
47 castanotus	II, IV	*	—	—	—	—	—	—	—
48 Lybius torquatus bocagei	—	*	1 ♂, 1 ♀	—	—	? July onwards	—	—	—
49 Buccanodon anchietae anchietae	—	*	—	—	—	—	—	—	—
rex	—	—	—	—	—	—	—	—	—
katangae	—	—	—	—	1 ♂	Summer	1 ♂, 1 ♀	—	—
52 Tricholaema diadematum frontatum	—	—	—	—	—	—	—	—	—
54 Pogonolius chrysoconus extoni	IV	—	—	—	2 ♀	? Aug./Sept.	—	—	—
56 Prodotiscus regulus	—	—	1 ♂, 1 ♀	—	—	—	—	—	—
57 insignis lathburyi	—	—	—	—	—	—	—	—	—
59 Campethera cailliautii fulleborni ≷ permista	—	*	1 ♂	—	—	? June	1 ♀	—	—
61 Dendropicos fuscescens hartlaubii	IV	*	1 ♂	1 ♀	—	? Sept. onwards	—	—	—
62 Mesopicos griseocephalus persimilis	—	*	—	—	—	—	—	—	—
76 Anthus similis schoutedeni	—	*	—	—	—	—	—	—	—
77 lineiventris	—	*	—	—	—	—	—	—	—
82 Turdoides jardinei tamalakanei	—	—	—	—	—	—	—	—	—
94 Alseonax adustus angolensis	—	—	—	—	—	—	1 ♂, 1 ♀	—	—
angolensis ≷ subadustus	—	—	1 ♀	—	—	? Sept.	—	—	—
97 Myopornis böhmi	—	—	—	—	—	—	1 ♂	—	—
101 Bradornis pallidus murinus	IV	—	—	—	—	—	1 ♂, 1 ♀	—	—
103 Melaenornis pammelaina	—	—	—	—	—	—	1 ♀	—	—
105 Hyliota australis slatini (?)	—	*	—	—	—	—	3 ♂, 1 ♀	—	—
106 flavigaster barbozae	III	—	—	—	—	—	1 ♂	—	—
107 Batis m. molitor	—	—	1 ♂	(2 ♀)	(1 ♂), 1 ♀	? Sept.	—	—	—
111 Platysteira peltata mentalis	II	—	—	1 ♀	—	Summer	—	—	—
113 Elminia albicauda	II	—	—	1 ♀	—	—	—	—	—
114 Tchitrea viridis plumbeiceps	II	*	—	—	—	—	—	1 ♂, 1♀	—
116 Turdus libonyanus verreauxi	—	—	1 ♂	—	—	? Sept.	—	—	—
119 Geokichla litsipsirupa stierlingi	—	*	—	—	—	—	1 ♀	—	—
120 Monticola angolensis	—	—	—	—	—	—	—	—	—
124 Cercomela familiaris falkensteini	IV	—	—	—	—	—	—	—	—
125 Myrmecocichla arnotti harterti	—	—	—	—	—	—	—	—	—
137 Erythropygia b. barbata	—	—	—	—	—	—	1 ♂	—	—
147 Calamonastes simplex huilae	—	*	—	—	—	—	—	—	—
152 Sylvietta r. ruficapilla	—	*	—	—	1♀	? Oct.	—	—	—
155 Eremomela icteropygialis poliоxantha	IV	—	—	—	—	—	1	1	—
156 Eremomela scotops pulchra	—	—	—	—	1 ♂ (2)	? Sept.	1 ♂	—	—
157 atricollis	—	—	—	—	—	—	2 ♂	—	—
158 salvadorii	—	*	—	—	—	—	—	—	—
159 Camaroptera brevicaudata subsp.?	II, IV	*	1 ♂ (1)	—	—	—	—	—	—
162 Cisticola chiniana fortis	IV	—	—	—	—	—	—	—	—
166 fulvicapilla dispar	IV	—	—	—	—	—	—	—	—
dispar ≷ hallae	—	—	—	—	1 ♂	Summer	—	—	—
177 Prinia subflava graueri	IV	—	—	—	1 ♂	Summer	—	—	—
179 flavicans bihe	IV	—	—	—	—	—	—	2 ♂, 2 ♀	—
191 Psalidoprocne orientalis reichenowi	—	—	2 ♂ (1)	1 imm. ♂	—	? June	—	—	—
195 Coracina pectoralis	—	—	1 ♀	—	—	Summer	—	—	—
197 Prionops plumata poliocephala	—	—	—	—	1 ♂	? June	1	—	—
198 retzii nigricans	—	—	—	—	—	—	1 ♂	—	—
200 Eurocephalus anguitimens	—	—	—	—	—	—	—	—	—
201 Nilaus afer affinis	—	—	—	—	—	—	—	—	1 ♂
202 Lanius s. souzae	—	—	—	1 ♂	—	Summer	—	1 ♂	1 ♂
205 Laniarius aethiopicus major	—	*	1 imm. ♂	1 ♂	—	? May/June	—	—	—
208 Dryoscopus cubla hamatus	II, IV	—	—	—	—	—	1 ♂	—	—
211 Tchagra s. senegala	—	*	1 ♂, 1 ♀	1 ♀	—	? June	—	—	—
213 Antichromus minutus anchietae	—	—	1 ♀	—	—	—	—	—	—
216 Chlorophoneus sulfureopectus similis	II	—	—	1 ♂, 1	—	—	—	—	—
218 Malaconotus hypopyrrhus interpositus	—	*	1 ♂	—	—	? June	1 ♀	—	—
222 Parus leucomelas insignis	IV	—	1 ♂	—	—	Summer	—	—	—

of the Woodlands

Districts				Mt. Moco		South-central and South-western Districts						
7	9	20	Breeding	8	Breeding	10	11	12	13	15	Breeding	
—	—	—	—	1 ♂, 1 ♀	? Sept.	—	—	—	—	—	—	4
—	—	—	? June	—	—	—	—	—	—	—	—	6
—	—	—	—	—	—	—	—	—	—	—	—	15
—	—	—	Summer	—	—	—	—	—	—	—	—	16
—	—	—	—	—	—	—	—	1 ♂	—	—	—	19
—	—	—	—	—	—	—	—	—	—	—	—	24
—	—	—	—	—	—	—	—	—	—	—	—	25
—	—	—	—	—	—	—	—	—	—	—	—	28
—	1 ♀	—	Summer	—	—	—	—	—	—	—	—	29
—	—	—	—	—	—	—	—	—	—	—	—	30
—	—	—	—	—	—	—	—	—	—	—	—	31
—	—	—	—	—	—	—	—	—	1 ♀,	—	—	34
—	—	—	Summer	—	—	—	—	—	—	—	—	37
—	—	—	—	—	—	—	—	—	—	—	—	40
—	—	—	—	—	—	—	—	—	—	—	—	45
1 ♂, 2 ♀, 1 juv. ♂	—	—	July	—	—	—	—	—	—	—	—	47
3 ♂	—	—	July/Aug.	—	—	—	—	—	—	—	—	48
—	—	—	—	—	—	1	—	—	—	—	—	49
1 ♂	—	—	? June	—	—	—	—	—	—	—	—	
—	—	—	? Sept.	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	1 ♂	—	—	—	—	Summer	52
1 ♂	2 ♂	—	? Oct.	—	—	—	—	1 ♂	—	—	? July	54
—	—	—	—	—	—	—	—	—	—	—	—	56
—	—	—	—	1 ♀	? Sept.	—	—	—	—	—	—	57
—	—	—	—	—	—	—	—	—	—	—	—	59
—	1 ♀	—	Summer	—	—	1 ♂	—	—	—	—	Summer	61
—	—	—	—	—	—	—	—	—	1 imm.	—	—	62
1	1	—	—	—	—	1 ♂	—	—	—	—	? Oct.	76
—	—	—	—	1 ♂	Summer	—	—	—	—	—	—	77
—	—	—	—	—	—	1 ♂, 1 ♀	—	—	—	—	Summer	82
—	—	—	—	1 ♀	? Sept.	2	—	1 ♂	—	—	? Oct.	94
—	—	—	—	—	—	—	—	—	—	—	—	
—	1 ♂	—	? Sept. onwards	—	—	—	—	—	—	—	—	97
1 ♂	—	—	? July onwards	1 ♂	Summer	—	—	—	—	—	—	101
—	—	—	? July	—	—	—	—	—	—	—	—	103
—	—	—	? Sept.	—	—	—	—	—	—	—	—	105
1 ♂	—	—	? Sept.	—	—	—	—	—	—	—	—	106
1 ♂, 1 ♀	1 ♂	—	? Sept.	—	—	—	—	—	—	—	—	107
—	—	—	—	—	—	—	—	—	—	—	—	111
—	—	—	—	—	—	—	—	—	—	—	—	113
—	—	—	? Aug.	—	—	—	—	—	—	—	—	114
1 ♀	1 ♂, 1 ♀	—	? Sept.	—	—	—	—	—	—	—	—	116
—	—	—	? Sept.	—	—	—	—	—	—	—	—	119
—	—	1 imm. ♂	? May/June	—	—	—	—	—	—	—	—	120
—	—	—	—	1 ♂, 1 ♀	? Sept.	—	—	—	—	—	—	124
—	—	—	—	—	—	2 ♂, 1 ♀	—	2 ♂	—	—	? Sept.	125
—	1 ♀	—	? Sept. onwards	—	—	—	—	—	—	—	—	137
1 ♀	1 ♀	—	? Sept.	—	—	—	—	—	—	—	—	147
—	1 ♂	—	? Oct.	—	—	1 ♀	—	—	—	—	? Oct.	152
—	—	—	—	—	—	—	—	—	—	—	—	155
(1)	1 ♂ (3)	—	? Sept.	—	—	—	—	—	—	—	—	156
—	1 ♂, 1 ♀	—	? Sept. onwards	—	—	1 ♀	—	—	—	—	? Sept.	157
—	1 ♀	—	? Sept.	—	—	—	—	—	—	—	—	158
—	—	—	—	—	—	—	—	—	—	—	—	159
—	—	—	Summer	—	—	—	—	—	—	—	—	162
—	2 ♂	—	Summer	—	—	—	—	—	—	—	—	166
—	—	—	—	—	—	—	—	—	—	—	—	
1 ♂, 1 ♀	(1)	—	? July onwards	1 imm. ♀	? May/June	—	—	—	—	1 ♂	? July	177
—	—	—	? Sept. onwards	—	—	—	—	—	—	—	—	179
1 ♂	—	—	? June	—	—	—	—	—	—	—	—	191
—	—	—	—	—	—	—	—	—	—	—	—	195
—	—	—	—	—	—	—	2 ♀	—	—	1	? July	197
—	—	—	? Oct.	—	—	—	—	—	—	—	—	198
—	—	—	—	—	—	1 ♂	—	—	—	—	—	200
1 ♂, 1 ♀	1 ♂, 1 ♀	—	? Sept.	—	—	—	—	—	—	—	—	201
—	—	—	Summer	1 ♂	Summer	—	—	—	—	—	—	202
—	—	—	—	—	—	—	—	—	—	—	—	205
—	—	—	—	—	—	—	—	—	—	—	—	208
1 ♀	—	—	? June	—	—	—	—	—	—	—	—	211
—	—	—	—	1	—	—	—	—	—	—	—	213
—	—	—	—	—	—	—	—	—	—	—	—	216
—	—	—	? Sept.	—	—	—	—	—	—	—	—	218
—	—	1 imm. ♀	? May/June	—	—	—	—	—	—	—	—	222

TABLE I.—

	Other references		Eastern Districts				Central		
	Tables	Syst. Notes	1	2	3	Breeding	4	5	6
223 Parus r. rufiventris	—	—	—	1 ♂	—	? Sept.	—	—	—
224 Oriolus auratus notatus	—	—	1 ♂	—	—	? June	1 ♂	—	—
225 Neocichla g. gutturalis	—	—	—	—	—	—	—	—	—
226 Cinnyricinclus leucogaster verreauxi	—	—	1 ♂	—	—	? June	—	—	—
228 Lamprotornis mevesii benguelensis	IV	*	—	—	—	—	—	—	—
229 acuticaudus	II	—	—	1 ♂	—	? Aug.	1 imm. ♀	—	—
231 Zosterops senegalensis quanzae	—	*	—	—	—	—	—	—	—
heinrichi	II	—	—	—	—	—	1 ♂	—	—
quanzae ≷ anderssoni	—	—	—	—	—	—	—	—	—
232 Nectarinia kilimensis gadowi	—	*	—	—	—	—	—	—	1 ♂, 1 ♀, 2 imm. ♂, 1 imm.
233 bocagei	—	*	—	—	—	—	—	—	—
235 Cinnyris cupreus chalceus	—	—	1 ♀	(1)	1 ♂	Summer	1 ♀	—	2 ♂ (1)
237 o. oustaleti	—	*	—	—	—	—	—	1 ♂	1 ♀, 1 imm. ♀
238 venustus falkensteini	—	—	—	2 ♂, 1 imm. ♂	—	? June onwards	1 ♂	—	(2)
239 afer ludovicensis	II	—	—	—	—	—	—	—	—
240 chalybeus intermedius	—	—	—	—	—	—	(2)	—	—
242 Chalcomitra amethystina deminuta	—	—	2 ♂ (1)	—	—	? June	3 ♂	2 ♀	—
243 senegalensis saturatior	—	—	—	1 ♂	1 ♂, 1 ♀	? June	1 ♂	—	1
246 Anthreptes collaris phillipsi	II	*	—	—	1 imm. ♂ 1 imm. ♀	June	1 ♂	—	—
247 longuemariae angolen-	—	—	1 ♂	—	—	? Sept.	—	—	—
248 anchieta	—	—	—	—	—	—	—	—	—
249 Salpornis spilonota salvadori	—	—	—	—	—	—	1 ♂	—	—
254 Petronia superciliaris	—	—	1 ♀	—	1 ♂	? Sep	1 ♂	—	—
258 Ploceus x. xanthops	II	—	—	—	—	—	—	—	—
269 Lonchura cucullata scutata	—	—	(1)	—	—	—	—	—	—
274 Pytelia m. melba	IV	—	—	—	—	—	—	—	1 ♂
289 Steganura paradisaea obtusa	—	—	1 ♀	—	—	? Aug.	1 ♂	—	—
291 Serinus sulphuratus sharpii	—	—	—	—	—	—	—	—	1
295 Poliospiza gularis benguellensis	—	—	—	—	—	—	—	—	—
297 Emberiza cabanisi cognominata	—	—	—	—	—	—	1 ♂	—	—
298 f. flaviventris	IV	—	2 ♂, 1 imm. ♂	—	—	? May/June	—	—	—

TABLE II.—*Birds*

	Other references		Eastern Districts (riverine)		
	Tables	Syst. Notes	1	2	Breeding
1 Accipiter minullus	—	—	—	—	—
2 Francolinus swierstrai	—	*	—	—	—
14 Turtur tympanistria fraseri	—	—	—	—	—
17 Ceuthmochares a. aereus	—	—	—	—	—
19 Poicephalus meyeri matschei	I	—	—	1 ♂	—
21 Tauraco corythaix schalowi	—	*	—	—	—
22 erythrolophus	—	*	—	—	—
27 Ispidina p. picta	—	—	1 ♂	—	—
36 Ciccaba woodfordii bohndorffi	—	—	1 ♂	—	Summer
41 Caprimulgus poliocephalus koesteri	—	*	—	—	—
43 Heterotrogon vittatus camarunensis	—	*	—	—	—
44 Apaloderma n. narina	—	*	—	—	—
47 Colius castanotus	I, IV	*	—	—	—
50 Gymnobucco calvus vernayi	—	*	—	—	—
53 Viridibucco coryphaea angolensis	—	*	—	—	—
55 Indicator m. minor ≷ conirostris	—	*	1 ♂	—	? July
58 Campethera abingoni annectens	IV	—	1 ♀	—	Summer
60 nivosa herberti	—	*	—	—	—
62 Mesopicos griseocephalus persimilis	I	*	—	—	—
63 Smithornis capensis albigularis	—	—	2 ♂, 1 ♀	—	—
83 Pseudoalcippe abyssinicus ansorgei	—	—	—	—	—
84 Malacocincla fulvescens dilutior	—	*	—	—	—
86 Pycnonotus barbatus tricolor	—	—	—	—	—
87 Andropadus l. latirostris	—	—	—	—	—
88 virens zombensis	—	—	2 ♂	1 ♂, 1 ♀	? June

Continued

Districts				Mt. Moco		South-central and South-western Districts						
7	9	20	Breeding	8	Breeding	10	11	12	13	15	Breeding	
—	—	—	—	—	—	—	—	—	—	—	—	223
—	—	—	? Aug.	—	—	—	—	—	—	—	—	224
—	—	—	—	—	—	2 ♂, 2 ♀ (1)	—	—	—	—	Summer	225
1 ♂	—	—	? July	—	—	—	—	—	—	—	—	226
—	—	—	—	—	—	—	—	1 ♀	—	—	Summer	228
1 ♂, 1 ♀	—	—	? May/June and Sept.	—	—	—	—	—	—	—	—	229
—	1 ♀	—	? Sept.	1	—	—	—	—	—	—	—	231
—	—	—	? July	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	1 ♂	—	? July	
5 ♂, 1 imm. ♂	1 ♂ (1)	—	June	4 ♂, 1 ♀ (1)	? July	—	—	—	—	—	—	232
—	1 ♂, 1 ♀ 3 imm. ♀	—	June	—	—	—	—	—	—	—	—	233
—	(3)	—	Summer	(1)	—	—	—	—	—	—	—	235
4 ♂, 1 juv. (1)	2 ♂, 2 imm. ♀	—	June onwards	—	—	—	—	—	—	—	—	237
—	1 ♀	—	Summer	—	—	—	—	—	1 ♂	—	—	238
—	—	—	—	—	—	—	—	1 ♀	—	—	—	239
1 ♂	—	—	—	—	—	1 imm. ♂. 1 ♀	—	—	—	—	—	240
—	1 ♂, 1 ♀ 1 imm. ♂ (1)	—	June	1 ♂	? June	—	—	—	—	—	—	242
2	1 imm. ♂	—	? June	—	—	—	—	—	—	—	—	243
—	—	—	—	—	—	—	—	—	—	—	—	246
—	1 ♀, 1 imm. ♂	—	—	—	—	1 ♂, 1 imm. ♂	—	—	—	—	—	247
1 ♀	2 ♂	—	? June	—	—	—	—	—	—	—	—	248
2 ♂	—	1 ♂	? Sept.	—	—	—	—	1 ♂	—	—	? Aug.	249
1 ♂	1 ♂	—	? Sept.	—	—	—	—	—	—	—	—	254
1 ♂, 1 ♀	—	—	? Sept.	1 ♀	? Sept.	—	—	—	—	—	—	258
1	—	—	—	(1)	—	—	—	—	—	—	—	269
—	—	—	? July	—	—	—	—	—	—	—	—	274
—	—	—	? Aug.	—	—	—	—	—	—	—	—	289
2 ♂	—	—	? July onwards	1 ♂	? July	—	—	—	1 ♂	—	—	291
—	—	—	—	1 ♀	? Sept.	—	—	—	—	—	—	295
—	—	—	Summer	—	—	—	—	—	—	—	—	297
—	—	—	—	—	—	—	—	—	—	—	—	298

of the Forests

Mt. Moco (montane)		South-western (? montane)		Western (escarpment and riverine)				
8	Breeding	13	Breeding	15	18	20	Breeding	
—	—	—	—	1 ♂	—	—	—	1
1 ♂, 1 imm. ♂	? May/June	—	—	—	—	—	—	2
1 ♂	—	—	—	—	—	—	—	14
—	—	—	—	—	1 ♀	—	—	17
—	—	—	—	—	—	—	—	19
1 ♀	? Sept.	1 ♀	—	1 ♂	—	—	? Oct.	21
—	—	—	—	1	—	—	—	22
—	—	—	—	—	—	—	—	27
—	—	—	—	—	—	—	—	36
1 ♂	Summer	—	—	—	—	—	—	41
1 ♂, 1 ♀	? Sept.	—	—	—	—	—	—	43
—	—	—	—	—	1 ♀	—	? Aug.	44
1 ♀	—	—	—	1 ♂	—	—	? July	47
2 ♀	? Sept.	—	—	—	—	—	—	50
1 ♂, 1 ♀	—	—	—	—	—	—	—	53
—	—	—	—	—	—	—	—	55
—	—	—	—	—	—	—	—	58
—	—	—	—	—	1 ♂	—	Summer	60
1 ♂, 2 imm.	—	—	—	—	—	—	—	62
—	—	—	—	1 imm. ♂	—	—	July	63
3 ♂, 1 ♀	? Aug. onwards	—	—	—	—	—	—	83
—	—	—	—	—	3 ♂	—	? July	84
1 ♂	? July	—	—	—	—	—	—	86
—	—	—	—	—	1 ♂, 1 ♀	—	? July	87
—	—	—	—	—	—	—	—	88

TABLE II.—

	Other references		Eastern Districts (riverine)		
	Tables	Syst. Notes	1	2	Breeding
89 Chlorocichla f. falkensteini	—	*	—	—	—
90 flaviventris occidentalis	—	—	—	—	—
91 flavicollis flavigula	—	—	—	1 ♂	? June
92 Phyllastrephus fischeri cabanisi	—	—	—	1 ♂, 1 imm. 1 (2)	? May/June
93 fulviventris	—	*	—	—	—
95 Alseonax cassini	—	—	—	—	—
98 Chloropeta natalensis major	—	—	—	—	—
99 Parisoma plumbeum orientale	—	—	—	—	—
104 Dioptrornis brunneus bailundensis	—	—	—	—	—
109 Batis m. margaritae	—	*	—	—	—
110 minulla	—	—	—	—	—
111 Platysteira peltata mentalis	I	—	1 ♂	2 ♂	—
112 Dyaphorophyia concreta ansorgei	—	*	—	—	—
113 Elminia albicauda	I	—	—	—	—
114 Tchitrea viridis plumbeiceps	I	*	—	—	—
melampyra bannermani	—	*	—	—	—
117 Turdus olivaceus stormsi	—	—	1 ♂, 1 ♀	—	? Sept.
118 pelios bocagei	—	*	—	—	—
131 Cossypha heuglini heuglini	—	—	—	1 ♀ (1)	? June
subrufescens	—	—	—	—	—
132 polioptera polioptera	—	*	1 ♂, 2 ♀	—	—
133 natalensis intensa	—	*	1 ♂, 1 ♀	1 imm. ♀	? May/June
larischi	—	—	—	—	—
134 b. bocagei	—	—	—	—	—
135 Alethe p. poliocephala	—	—	—	—	—
136 Cichladusa ruficauda	—	—	—	—	—
139 Erythropygia leucosticta reichenowi	—	*	—	—	—
142 Seicercus laurae	—	*	—	—	—
143 Bradypterus mariae boultoni	—	*	—	—	—
149 Apalis rufogularis brauni	—	*	—	—	—
150 cinerea grandis	—	—	—	—	—
153 Sylvietta virens tando	—	—	—	—	—
159 Camaroptera brevicaudata sharpei (?)	I, IV	*	—	—	—
harterti	—	—	—	—	—
169 Cisticola erythrops lepe	—	—	—	—	—
178 Prinia l. leucopogon	—	—	1 ♂, 1 ♀	—	—
180 Hirundo abyssinica unitatis	—	*	—	—	—
193 Campephaga phoenicea sulphurata	—	—	—	—	—
194 q. quiscalina	—	—	—	—	—
196 Dicrurus l. ludwigii	—	—	—	—	—
199 Prionops gabela	IV	*	—	—	—
203 Lanius mackinnoni	—	—	—	—	—
208 Dryoscopus cubla hamatus	I, IV	—	—	—	—
209 a. angolensis	—	—	—	—	—
214 Chlorophoneus multicolor batesi	—	*	—	—	—
215 nigrifrons manningi	—	*	1 imm. ♂	—	? May/June
216 sulfureopectus similis	I	—	—	—	—
217 Telephorus viridis	—	*	—	—	—
219 Nicator vireo tando	—	—	—	—	—
229 Lamprotornis acuticaudus	I	—	—	—	—
231 Zosterops senegalensis quanzae ≷ kasaica	I	*	—	—	—
234 Cinnyris superbus	—	—	—	—	—
236 bifasciatus	—	—	—	—	—
239 afer ludovicensis	I	—	—	—	—
244 Cyanomitra verticalis bannermani	—	—	—	1 ♂	? June
245 olivacea cephaelis	—	—	—	—	—
246 Anthreptes collaris somereni	I	*	—	—	—
phillipsi	I	—	1 ♂, 1 ♀	—	—
252 Passer griseus griseus	—	—	—	—	—
258 Ploceus x. xanthops	I	—	—	—	—
259 Symplectes bicolor kigomaensis	—	—	1 ♂	—	Summer
amaurocephalus	—	—	—	—	—
260 Hyphanturgus n. nigricollis	—	—	—	—	—
261 ocularis crocatus	—	—	1 imm. ♂	—	? May/June
270 Spermaphaga r. ruficapilla	—	—	—	—	—
271 Cryptospiza r. reichenovii	—	—	—	—	—
273 Hypargos niveoguttatus	—	—	1 ♂, 1 imm. ♂, 1 imm. ♀	—	? May/June
285 Estrilda p. perreini	—	—	—	1 ♀, 1 (1)	? June
288 Hypochaera nigerrima	—	—	—	—	—
296 Poliospiza burtoni tanganjicae	—	—	—	—	—

Continued

Mt. Moco (montane)		South-western (? montane)		Western (escarpment and riverine)				
8	Breeding	13	Breeding	15	18	20	Breeding	
—	—	—	—	1 ♂	1 ♀, 1 imm. ♀	—	? June/July	89
—	—	—	—	1 ♂, 1 ♀ 1 imm. ♀	—	—	—	90
1 ♂	? June	—	—	—	—	—	—	91
3 ♂, 2 ♀	Summer	—	—	—	—	—	—	92
—	—	—	—	1 ♂, 1♀, 1	1 ♂, 1 ♀	—	? Aug.	93
—	—	—	—	—	1 ♀	—	? Sept.	95
1	—	—	—	—	—	—	—	98
—	—	—	—	1 ♂	—	—	? Oct.	99
3 ♂, 2 ♀	? Sept.	—	—	—	—	—	—	104
2 ♂, 1 ♀	? July onwards	—	—	—	—	—	—	109
—	—	—	—	1 ♂, 2 ♀	1 ♂, 1 ♀	—	? Aug.	110
2 ♂, 2 ♀	—	—	—	—	—	1 ♀	? Oct.	111
—	—	—	—	3 ♂, 3 ♀, 1 juv. ♂	1 ♂, 1 ♀	—	? July	112
1 ♂	—	—	—	—	—	1 ♀	? July	113
1 ♂, 1 ♀	? Sept.	—	—	—	—	—	—	114
—	—	—	—	—	1 ♀	—	? July	
—	—	—	—	—	—	—	—	117
1 ♂	? Sept.	—	—	—	—	—	—	118
—	—	—	—	—	—	—	—	131
1 ♂	? Oct.	1 ♂, 1 ♀	—	1 ♀	—	—	Summer	
—	—	—	—	—	—	—	—	132
—	—	—	—	—	—	—	—	133
—	—	—	—	—	1 ♂, 2 ♀, 1 imm. ♀	—	July	
6 ♂, 2 ♀	Summer	1 ♀	Summer	—	—	—	—	134
—	—	—	—	—	1 juv. ♂	—	Aug.	135
—	—	—	—	1 ♂, 3 ♀	—	—	Summer	136
—	—	—	—	1 imm. ♀	—	—	? June	139
2 ♂, 2 ♀, 2 (1)	August	—	—	—	—	—	—	142
1 ♂, 2 ♀	? Sept. onwards	—	—	—	—	—	—	143
—	—	—	—	—	1 ♂, 2 juv. ♀	—	Aug.	149
2 ♂, 2 ♀	? Sept.	—	—	—	—	—	—	150
—	—	—	—	—	1 ♂, 1 ♀	—	—	153
—	—	1 ♂	—	1 ♂, 1 juv.	—	—	Aug.	159
—	—	—	—	—	1 ♀	—	? July	
1 ♂, 3 ♀	Summer	—	—	1 ♀	—	—	? July	169
—	—	—	—	—	—	—	—	178
1	? Aug.	—	—	—	—	—	—	180
—	—	—	—	—	1 ♀	—	? July	193
—	—	—	—	1 ♂	—	—	? July	194
—	—	—	—	1 ♂, 1 ♀	—	—	? Oct.	196
—	—	—	—	—	1 imm. ♀	—	? June/July	199
—	—	—	—	—	1 imm. ♂	—	? June/July	203
—	—	—	—	1 imm. ♀	2 ♂	—	? June/July, ? Oct.	208
—	—	—	—	—	1 ♂, 1 ♀	—	? July	209
—	—	—	—	—	1 ♂, 1 imm. ♂	—	? June/July	214
—	—	—	—	—	—	—	—	215
—	—	—	—	1 imm. ♀, 1	—	—	? June/July	216
—	—	—	—	1 ♂, 1 ♀	—	—	—	217
—	—	—	—	—	1 ♀	—	? July	219
1 ♀, 1	—	—	—	—	—	—	—	229
—	—	—	—	—	1 ♀	—	? July	231
—	—	—	—	1 ♂	—	—	—	234
—	—	—	—	1 imm. ♂, 1 ♀	—	—	—	236
2 ♂, 2 ♀, 5 imm. ♂, 4 imm. ♀	? July	2 ♂, 1 ♀, 2 imm. ♂	? July	—	—	—	—	239
—	—	—	—	—	—	—	—	244
—	—	—	—	—	2 ♂, 1 imm. ♂	—	—	245
—	—	—	—	—	1 ♂, 1 ♀	—	—	246
—	—	—	—	—	—	—	—	
—	—	—	—	—	1 ♂	—	? July	252
—	—	2 ♂	—	—	1 ♀	—	—	258
—	—	—	—	—	—	—	—	259
—	—	—	—	2 ♀, 1 imm. ♂	1 ♀	—	? June/July	
—	—	—	—	—	2 imm. ♀	—	? June/July	260
1 ♂, 1 imm. ♂	June	—	—	—	—	—	—	261
—	—	—	—	—	1 ♂, 1 imm. ♀	—	? July	270
—	—	—	—	—	1 ♂, 1 ♀, 1 imm. ♂	—	July	271
—	—	—	—	—	—	—	—	273
—	—	—	—	1 ♀	—	—	? July	285
—	—	—	—	1 imm.	—	—	July	288
1 ♂, 2 ♀	? Sept.	—	—	—	—	—	—	296

TABLE III.—*Birds of Grasslands,*

		Other references		Eastern Districts				Central		
		Tables	Syst. Notes	1	2	3	Breeding	4	5	6
5	Francolinus levaillantoides jugularis	—	—	—	—	—	—	—	—	—
7	albogularis meinertzhageni	—	*	—	2 ♂, 3 ♀	—	Summer	—	—	—
8	Pternistes afer crainchii	IV	—	—	—	1 ♂	? June	—	—	—
10	Glareola pratincola fulleborni	—	—	—	—	1 ♀	Summer	—	—	—
12	Cursorius temminckii	—	—	—	—	—	—	1 juv. ♂	—	—
18	Centropus toulou grilli	—	—	—	—	—	—	—	—	—
26	Halcyon albiventris	—	—	—	1	—	—	—	—	—
38	Caprimulgus natalensis mpasa (?)	—	*	—	—	1 ♂	Summer	—	—	—
39	fossii	—	—	—	—	2 ♂, 2 ♀	Aug. onwards	—	—	—
42	Micropus caffer ansorgei	—	—	—	—	—	—	1 ♂	—	—
64	Mirafra africana occidentalis	—	*	—	—	—	—	—	—	—
	occidentalis ≷ pallida	—	—	—	—	—	—	—	—	—
	kabalii	—	—	—	2 ♂, 2 ♀	—	Summer	—	—	—
65	angolensis angolensis	—	*	—	—	—	—	1 ♀	3 ♂, 1 ♀	—
	antonii	—	—	—	6 ♂, 3 ♀	—	Summer	—	—	—
66	rufocinnamomea fischeri	—	—	—	1 ♀	—	—	1 ♂	—	—
69	Certhilauda albofasciata obscurata	—	—	—	—	—	—	—	3 ♂, 2 ♀	—
70	Calandrella cinerea saturatior	—	—	—	2 ♂, 2 ♀ 2 juv.	—	July	—	—	—
72	Eremopterix verticalis damarensis	IV	—	—	—	—	—	—	—	—
73	Motacilla capensis simplicissima	—	—	—	—	—	—	—	—	—
74	Anthus vaalensis neumanni	—	*	—	1 ♀	1 ♀	Summer	1 ♀	2 ♂, 1 ♀	1 ♀
75	leucophrys bohndorffi	—	*	—	—	—	—	—	—	—
78	Macronyx ameliae	—	*	—	1 ♂, 2 ♀, 1 imm. ♀	1 ♂	? July onwards	—	2 ♂	—
79	grimwoodi	—	*	—	1 ♂	—	? Oct.	—	2 ♂, 1 ♀	—
80	fulleborni ascensi	—	*	—	2 ♀	1 ♂	? Oct.	—	1 ♂, 1 ♀, 1	—
81	Turdoides leucopygia hartlaubii	IV	—	—	—	1 imm. ♀	? May/June	—	—	—
106	Hyliota flavigaster barbozae	I	—	—	—	—	—	—	—	—
122	Oenanthe pileata livingstonii (?)	—	—	—	—	—	—	—	1 ♂	—
126	Myrmecocichla nigra	—	—	—	1 ♂, 1 ♀	—	Summer	—	—	—
127	tholloni	—	*	—	—	—	—	—	2 ♂, 1 ♀	—
128	Saxicola torquata caffra		—	—	2 ♂	—	—	—	1 ♂, 1 ♀, eggs	—
141	Acrocephalus baeticatus cinnamomeus	—	*	—	—	—	—	—	—	—
145	Calamocichla gracilirostris winterbottomi	—	*	—	—	2 ♂, 2 ♀	? Sept.	—	—	—
	cunenensis	—	—	—	—	—	—	—	—	—
148	Schoenicola brevirostris alexinae	—	—	1 imm. ♀	—	—	—	—	—	—
160	Cisticola a. ayresii	—	—	—	—	—	—	—	—	—
161	lateralis vincenti	—	—	3 ♂, 2 ♀	—	—	Summer	—	—	—
162	natalensis katangae	—	—	(1)	—	2 ♀	Summer	—	—	—
	huambo	—	—	—	—	—	—	—	—	—
164	tinniens perpulla	—	—	—	1 ♂	1 ♂, 1 ♀	Summer	—	2 ♂	—
165	robusta angolensis	—	—	—	—	1 ♀	Summer	—	1 ♂	—
167	brachyptera loanda	—	—	1 ♀	—	1 ♂	Summer	1 ♂	—	—
168	pipiens congo	—	—	—	—	1 ♂	Summer	—	—	—
170	bulliens	—	—	—	—	—	—	—	—	—
171	emini bailundensis	—	—	—	—	—	—	—	—	—
172	lais namba	—	—	—	—	—	—	—	—	—
173	rufilata ansorgei	—	—	—	—	—	—	—	1 ♂	—
174	textrix mystica	—	—	—	—	—	—	1 ♂	—	—
	bulubulu	—	—	—	—	—	—	—	1 ♂, 1 ♀	—
175	aridula lobito	IV	—	—	—	—	—	—	—	—
176	dambo	—	—	—	2 ♂, 1 ♀ (2)	3 ♀ (1)	Summer	—	—	—
180	Melocichla mentalis grandis	—	—	—	—	—	—	—	—	—
182	Hirundo albigularis ambigua	—	—	—	—	—	—	1 ♂, 1 ♀	—	—
183	dimidiata marwitzi	—	—	—	—	—	—	—	—	—
184	senegalensis monteiri	—	—	—	—	—	—	1 ♂	—	—
185	s. semirufa	—	—	—	—	—	—	—	1 ♀	—
186	nigrorufa	—	—	—	—	1 ♂, 2 ♀	Summer	—	1 ♂	—
187	angolensis	—	—	—	—	—	—	—	—	—
188	griseopyga	—	—	—	(1)	—	—	—	—	—
189	Riparia c. cincta	—	—	—	—	—	—	—	—	—
190	Ptynoprogne fuligula rufigula	—	*	—	—	—	—	—	—	—
191	Petrochelidon rufigula	—	*	—	—	—	—	3 ♂, 6 ♀, (1) eggs	—	—
202	Lanius collaris capelli	—	—	—	1 ♂	—	—	—	—	—
257	Ploceus temporalis	—	*	—	—	—	—	1 ♂, 1	—	—
262	Euplectes orix orix (?)	—	—	—	2 ♀	—	? June	—	—	—
263	capensis zambesiensis	—	—	1	—	—	? June	—	—	—
	angolensis	—	—	—	—	—	—	—	—	—
265	Coliuspasser axillaris bocagei	—	—	—	—	2 ♂, 1 ♀, 2 imm. ♂	? May/June	—	—	—
266	h. hartlaubi	—	—	—	—	—	—	1 ♀	—	—
267	a. ardens	—	—	1 imm. ♂	—	—	June	—	—	—

Reeds and Open Country

Districts				Mt. Moco		South-western Districts				Western Districts				
7	9	20	Breeding	8	Breeding	10	11	13	Breeding	15	17	18	Breeding	
—	—	—	—	—	—	—	—	—	—		1 juv. ♀		Aug.	5
—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
—	—	—	July	—	—	—	—	—	—	—	—	—	—	12
—	—	—	—	—	—	—	—	—	—	—	1 ♀	—	? Oct.	18
—	—	—	—	—	—	—	—	1 ♂	—	—	—	—	—	26
—	—	—	—	—	—	—	—	—	—	—	—	—	—	38
—	—	—	—	—	—	—	—	—	—	—	—	—	—	39
—	—	—	—	—	—	—	—	—	—	—	—	—	—	42
—	—	—	—	—	—	—	1 ♂, 1 ♀	—	? Oct.	—	1 ♂, 1 imm. ♂	—	July	64
—	—	—	—	—	—	—	—	1 ♂	? Oct.	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
1 ♂	—	—	? Oct.	—	—	—	—	—	—	—	—	—	—	65
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	66
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	69
—	1 ♀	—	—	—	—	—	—	—	—	—	—	—	—	70
—	—	—	—	—	—	—	—	—	—	—	1 ♂	—	—	72
1 ♂, 1 ♀	—	—	—	—	—	—	—	—	—	—	—	—	—	73
—	—	—	Summer	—	—	—	—	1 ♂, 2 ♀	? Oct.	—	—	—	—	74
1 ♂	—	—	? Oct.	—	—	—	—	—	—	—	—	—	—	75
—	—	—	? Oct.	—	—	—	—	—	—	—	—	—	—	78
—	—	—	? Oct.	—	—	—	—	—	—	—	—	—	—	79
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	80
—	1 ♂	—	? July	—	—	—	—	—	—	—	—	—	—	81
—	—	—	—	1 ♀	? Sept.	—	—	—	—	—	—	—	—	106
—	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	122
—	—	—	—	—	—	1 ♂	—	—	—	—	—	—	—	126
—	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	127
—	—	—	Aug.	—	—	—	—	—	—	—	—	—	—	128
—	—	—	—	—	—	—	—	—	—	1 ♀	—	—	? July	141
—	—	—	—	—	—	—	—	—	—	—	—	—	—	145
—	—	—	—	—	—	—	—	1 ♀	? July	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	148
1 ♀	—	—	Summer	—	—	—	—	—	—	—	—	—	—	160
—	—	—	—	—	—	—	—	—	—	—	—	—	—	161
—	—	—	—	—	—	—	—	—	—	—	—	—	—	162
1 ♂, 2 ♀	—	—	Summer	—	—	—	—	—	—	—	—	—	—	
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	164
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	165
2 ♂, 1	—	1 ♂	Summer	1 ♀, 2	Summer	—	—	—	—	—	—	—	—	167
—	—	—	—	—	—	—	—	—	—	—	—	—	—	168
—	—	—	—	—	—	—	—	—	—	1 ♂, 2 ♀	1 imm.	1 ♂	July onwards	170
—	—	—	—	1 ♂, 2 ♀, 1	Summer	—	—	—	—	—	—	—	—	171
1 ♂ (1)	—	—	Summer	3 ♀	Summer	—	—	—	—	—	—	—	—	172
—	—	—	Summer	—	—	1 ♂	—	—	Summer	—	—	—	—	173
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	174
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	1 ♂	—	Summer	175
—	—	—	—	—	—	—	—	—	—	—	—	—	—	176
1 ♂	—	—	—	—	—	—	—	—	—	—	—	—	—	180
—	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	182
—	1 ♀	—	? Sept.	—	—	—	—	—	—	—	—	—	—	183
—	—	—	? June	—	—	—	—	—	—	—	—	—	—	184
—	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	185
—	—	—	Summer	—	—	—	—	—	—	—	—	—	—	186
1 ♀	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	187
—	—	—	—	—	—	—	—	—	—	—	—	—	—	188
—	1	—	—	—	—	—	—	—	—	—	—	—	—	189
—	—	—	—	1	—	—	—	—	—	—	—	—	—	190
1 ♂, 2 ♀, 1	—	—	Aug.	—	—	—	—	—	—	—	—	—	—	191
1 ♂	—	—	—	—	—	—	—	—	—	—	—	—	—	202
—	—	—	? Sept.	—	—	—	—	—	—	—	—	—	—	257
—	—	—	—	—	—	—	—	—	—	—	—	—	—	262
—	—	—	—	—	—	—	—	—	—	—	—	—	—	263
—	1 ♂	—	? July	1	? July	—	—	—	—	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	265
—	—	—	—	—	—	—	—	—	—	—	—	—	—	266
1 ♀	—	—	? July	—	—	—	—	—	—	—	—	—	—	267

TABLE III.—

	Other references		Eastern Districts				Central		
	Tables	Syst. Notes	1	2	3	Breeding	4	5	6
268 Coliuspasser progne ansorgei	—	—	—	1 ♂, 1 ♀, 1 imm. ♂	—	? May/June	—	—	—
272 Ortygospiza atricollis minuscula	—	—	—	2 ♂ (1)	1 ♂	? June	—	—	—
275 Pytilia afra	—	—	—	—	—	—	—	—	—
277 Lagonosticta rubricata congica	—	—	1 ♀, 1 imm.	—	—	June	—	—	—
278 landanae	—	—	—	—	—	—	—	—	—
279 jamesoni ansorgei	—	—	—	—	—	—	—	—	—
280 nitidula	—	—	—	—	—	—	—	—	—
281 Clytospiza c. cinereovinacea	—	*	—	—	—	—	—	—	—
282 Coccopygia melanotis bocagei	—	—	—	—	—	—	—	—	—
283 Estrilda astrild niediecki	—	*	—	—	—	—	—	1 ♂	—
angolensis	—	—	—	—	—	—	—	—	—
284 paludicola benguellensis	—	—	—	—	—	—	—	—	—
286 Uraeginthus bengalus katangae	—	—	1 ♀	—	—	? Sept.	—	—	—
290 Serinus mozambicus tando	—	—	—	—	—	—	1 ♀	—	—
292 flavivertex huillensis	—	—	—	—	—	—	—	—	—
293 atrogularis lwenarum	—	—	—	—	—	—	—	2 ♀	1 ♀

TABLE IV.—*Birds of the Thornbush, Semi-desert,*

	Other references		Thorn,	
	Tables	Syst. Notes	11	12
3 Francolinus sephaena zambesiae	—	*	—	—
8 Pternistes a. afer	III	—	—	—
9 Numida mitrata (head only)	—	—	—	—
11 Rhinoptilus africanus bisignatus	—	—	—	—
13 Eremialector bicinctus ansorgei	—	—	—	—
20 Agapornis roseicollis catumbellae	—	—	—	—
23 Corythaixoides concolor pallidiceps	—	—	2 ♂	—
32 Tockus monteiri	—	—	—	—
33 Otus scops senegalensis	—	*	—	—
35 Bubo a. africanus	—	—	—	1 ♂
46 Colius indicus lacteifrons	—	—	—	—
47 castanotus	I, II	—	—	—
51 Tricholaema l. leucomelas	—	—	—	—
54 Pogonolius chrysoconus extoni	I	—	—	—
55 Indicator minor damarensis	II	*	—	—
58 Campethera abingoni annectens	—	—	—	—
61 Dendropicos fuscescens hartlaubii ≷ stresemanni	I	*	1 ♂, 1 ♀	—
67 Mirafra passerina	—	—	—	—
68 sabota ansorgei	—	—	—	—
71 Spizocorys starkii	—	—	—	—
72 Eremopterix verticalis damarensis	III	—	—	—
81 Turdoides leucopygia hartlaubii	III	—	1 ♀	—
85 Pycnonotus nigricans	—	—	—	—
96 Alseonax c. cinereus	—	*	—	—
100 Parisoma subcaeruleum ansorgei	—	—	—	—
101 Bradornis pallidus murinus	I	—	(1)	—
102 infuscata benguellensis	—	—	—	—
108 Batis pririt	—	*	—	—
120 Monticola brevipes kaokoensis	—	—	—	—
123 Oenanthe monticola albipileata	—	—	—	—
124 Cercomela familiaris angolensis	I	—	—	—
129 Karrucincla schlegelii benguellensis	—	—	—	—
130 Xenocopsychus ansorgei	—	*	—	1 ♂
138 Erythropygia leucophrys munda	—	—	1 ♀	—
ovamboensis	—	—	—	—
140 paena benguellensis	—	—	—	—
144 Achaetops pycnopygius	—	—	—	—
146 Calamonastes fasciolatus pallidior	—	—	—	—
151 Apalis f. flavida	—	—	1 ♀	—
154 Sylvietta rufescens ansorgei	—	*	—	—
mossamedes	—	—	—	—
155 Eremomela icteropygialis puellula	I	*	—	—
159 Camaroptera brevicaudata sharpei (?)	I, II	*	(2)	—

Continued

Districts				Mt. Moco		South-western Districts				Western Districts				
7	9	20	Breeding	8	Breeding	10	11	13	Breeding	15	17	18	Breeding	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	268
—	—	—	—	—	—	—	—	—	—	—	—	—	—	272
1 ♂	—	—	? July	—	—	—	—	—	—	—	—	—	—	275
—	—	—	—	—	—	—	—	—	—	—	—	—	—	277
—	—	—	—	—	—	—	—	—	—	—	—	1 ♂	? July	278
—	1	—	—	—	—	—	—	1 ♀	? July	—	—	—	—	279
—	1 ♀	—	? July	—	—	—	—	—	—	—	—	—	—	280
1 ♂, 1 ♀, 2 imm.	—	—	June	2 ♂, 2 imm.	June	—	—	—	—	—	—	—	—	281
2 ♂, 1 ♀ 2 imm.	—	—	June	2 ♀	? June	—	—	1 ♂	? June	—	—	—	—	282
—	—	—	? June	—	—	—	—	—	—	—	—	—	—	283
1 ♂, 1	—	—	—	—	—	—	—	—	—	—	—	—	—	
1 ♂, 1 ♀	—	—	? June	—	—	—	—	—	—	—	—	—	—	284
—	—	—	—	—	—	—	—	—	—	—	—	—	—	286
2 ♂, 1 ♀	—	—	? June	—	—	—	—	—	—	—	—	—	—	290
—	—	—	—	1 ♀	? Sept.	—	—	—	—	—	—	—	—	292
—	—	—	—	—	—	—	—	—	—	—	—	—	—	293

Tangled Thickets and Rocks of Western Districts

Thickets and Rocks						Semidesert		
13	15	17	19	Breeding	14	16	Breeding	
1 ♀	—	—	—	Summer	—	—	—	3
1 ♂, 2 ♀, 1 juv. ♀	—	—	—	July/Aug.	—	—	—	8
—	—	—	—	—	1 imm.	—	—	9
—	—	—	—	—	—	1 ♂	? July	11
—	—	—	—	—	1 ♂	—	? Oct.	13
1♀, 2 imm. ♂	—	—	—	—	—	—	—	20
1 imm. ♀ (1)								
—	—	—	—	Summer	—	—	—	23
—	—	—	—	—	1	—	? July	32
—	—	1 ♂	—	Summer	—	—	—	33
—	—	—	—	Summer	—	—	—	35
1 ♂	—	—	—	? July	—	—	—	46
—	—	1 ♂	—	? July	—	—	—	47
—	—	—	—	—	—	1 ♀	Summer	51
1 ♂	—	—	—	? Oct.	—	—	—	54
1 ♀	—	—	—	? July	—	—	—	55
—	—	1 ♂	—	Summer	—	—	—	58
—	—	—	—	? Oct.	—	—	—	61
—	—	—	—	—	1 ♂	—	? July	67
—	—	—	—	—	—	1 ♂, 2 ♀, 1	? July	68
—	—	—	—	—	—	2 ♀, 1	? July	71
—	—	—	—	—	—	1 ♂	—	72
1	—	—	—	Summer	—	—	—	81
2 ♀	—	—	—	? July	—	—	—	85
—	—	—	1 imm. ♀	July	—	—	—	96
—	—	—	—	—	—	2 ♂	? Aug.	100
1 ♂	—	—	—	? July	—	—	—	101
—	—	—	—	—	—	1 ♂, 1	? July	102
—	—	—	—	—	1 ♂	1 ♂, 2 ♀	? July	108
2 ♂, 2 ♀ 1 imm.	—	—	—	? May/June	1 ♂	—	? Oct.	120
—	—	—	—	—	—	1 ♂	—	123
—	—	—	—	—	1 ♀	1 ♂	—	124
—	—	—	—	—	—	1 ♀	? July	129
1 ♂, 1 ♀, 1	—	—	—	? Oct.	—	—	—	130
—	—	—	—	? Oct.	—	—	—	138
—	—	1 ♀	—	—	1 ♀	—	—	
—	—	—	—	—	—	1 ♂	? July	140
2 ♂	—	—	—	? Oct.	—	—	—	144
—	—	—	—	—	—	1 ♂	? July	146
2 ♀	1 imm.	—	—	July	—	—	—	151
—	—	—	—	—	—	1 ♂, 1 ♀	Summer	154
1	—	—	—	—	—	—	—	
—	—	—	—	—	1 ♀	1 ♂	Summer	155
—	—	—	—	—	—	—	—	159

TABLE IV.—

	Other references		Thorn,	
	Tables	Syst. Notes	11	12
162 Cisticola chiniana nr. frater	I	*	—	—
166 fulvicapilla hallae	I	—	—	1 ♀
175 aridula lobito	III	—	—	—
177 Prinia subflava ovampensis	I	—	1 ♀	—
179 flavicans ansorgei	I	—	—	—
199 Prionops gabela	II	*	—	—
206 Laniarius bicolor guttatus	—	*	—	—
207 atrococcineus	—	—	1 ♂, 1 ♀	—
208 Dryoscopus cubla hamatus	I, II	—	(1)	—
210 Lanioturdus torquatus	—	—	2 ♂, 2 ♀	—
212 Tchagra australis nr. damarensis	—	—	—	1 ♀
220 Parus afer benguelae	—	—	—	—
221 niger carpi	I	—	—	—
227 Lamprotornis n. nitens	—	—	—	1 ♂
228 mevesi mevesi	I	*	—	1 ♂
230 Onychognathus nabouroup benguellensis	—	—	—	—
241 Cinnyris fuscus	—	—	—	—
250 Plocepasser mahali ansorgei	—	—	—	—
251 Passer motitensis benguellensis	—	—	—	—
253 diffusus georgicus	—	—	—	—
255 Sporopipes squamifrons	—	—	—	—
256 Ploceus cucullatus collaris	—	—	—	—
264 Euplectes aurea	—	—	—	—
274 Pytilia m. melba	I	—	—	—
276 Lagonosticta senegala pallidicrissa	—	—	—	—
287 Granatina granatina	—	—	—	—
294 Poliospiza albogularis crocopygia	—	—	—	—
298 Enberiza f. flaviventris	I	—	1 ♀	—
299 Fringillaria capensis nebularum	—	—	—	—
300 t. tahapisi	—	—	—	—
301 i. impetuana	—	—	—	—

DISTRIBUTION THROUGHOUT AFRICA OF SPECIES FOUND IN ANGOLA

Woodland Birds (Table I)

The majority of birds collected in the Brachystegia woodlands belong to species, and even subspecies, with a wide distribution in tropical Africa. In some cases, as with the Groundscraper Thrush, *Geocichla litsipsirupa*, this extends from Abyssinia to South Africa; in others, such as the warblers *Eremomela salvadorii* and *E. atricollis*, it is limited to the woodland areas of higher rainfall in Angola, south-western Belgian Congo and western Northern Rhodesia. Other species are limited to the drier woodland areas of southern Africa; these include the shrike *Lanius souzae*, and the Angola Rock Thrush, *Monticola angolensis*.

Only three species listed exclusively in Table I have a more specialized distribution and all are highland birds. They are *Francolinus finschi* and the two sunbirds *Nectarinia bocagei* and *N. kilimensis*; the francolin with a sporadic distribution in the highlands of Angola north to Brazzaville; *N. bocagei* confined to the central highlands of Angola*, and *N. kilimensis* to the highlands of Angola and East Africa. There are also several well-differentiated subspecies endemic to the highlands of central Angola, the most distinct being the Angola race of the Brubru Shrike, *Nilaus afer affinis*, and of the seedeater, *Poliospiza gularis benguellensis*.

* Also at Kalandji, Kwango dist., Belgian Congo. (Schouteden, Rev. Zool. Bot. Afr. 59, 1959: 326).

Continued

Thickets and Rocks						Semidesert		
13	15	17	19	Breeding	14	16	Breeding	
1 ♂	—	—	—	Summer	—	—	—	162
1 ♀	—	—	—	Summer	—	—	—	166
—	—	—	—	—	—	1 ♀	Summer	175
1 ♀	—	—	—	? July	—	—	—	177
—	—	—	—	—	1 ♂, 1 ♀	1 ♂, 1	? July	179
—	—	—	1 ♀	? July	—	—	—	199
1 ♂, 2 ♀, 1 imm. ♂	1 imm.	1 ♂	—	July/Aug.	—	—	—	206
—	—	—	—	—	—	—	—	207
1 ♀	—	—	—	? July	—	—	—	208
—	—	—	—	? Oct. onwards	—	—	—	210
—	—	—	—	Summer	—	—	—	212
—	—	—	—	—	—	1 ♂, 1 ♀	? July	220
1 ♂, 1 ♀	—	1 ♀	—	? July onwards	—	—	—	221
—	—	—	—	? July	1 ♀	—	—	227
—	—	—	—	Summer	1 ♂	—	Summer	228
—	—	1 ♀	—	Summer	—	—	—	230
—	—	—	—	—	—	3 ♂, 2 ♀, 1 imm.	? Oct. onwards	241
—	—	—	—	—	1 ♀	—	? July	250
—	—	—	—	—	—	1 ♂	? July	251
1 ♀	—	—	—	? July	—	—	—	253
—	—	—	—	—	—	1 juv.	Aug.	255
—	—	1 ♂, 1 ♀	—	? Oct.	—	—	—	256
—	—	—	—	—	—	1 ♂	? July	264
2 ♀	—	—	—	? July	—	—	—	274
1 ♂	—	—	—	? July	—	—	—	276
1 ♂	—	—	—	? July	—	—	—	287
—	—	—	—	—	—	1 ♂	? July	294
—	—	—	—	Summer	—	—	—	298
1 ♀	—	—	—	Summer	—	—	—	299
1 ♂, 1 imm. ♂, 1 imm. ♀	—	—	—	July	1 ♂	—	? July	300
—	—	—	—	—	—	2 imm. ♂	July	301

Eucalyptus plantations, common along the railway, have been included in this Table, but few birds were seen in them and the only ones noted as collected in them were the Paradise Flycatchers at Vouga.

Forest Birds (*Table II*)

The birds found in the eastern riverine forest have all a wide distribution in the lowland forests of tropical Africa. Many are found also in the riverine forests of northern Angola, outside the range of the expedition, but only three, the broadbill *Smithornis capensis*, the forest weaver *Symplectes bicolor*, and *Cossypha natalensis* were found as well at Chingoroi or Gabela, the last two represented by different subspecies. Two others, the greenbul *Phyllastrephus fischeri* and *Cossypha heuglini* were also in the montane forest on Mt. Moco.

Of the thirty species collected in the montane forest on Mt. Moco ten are not confined to forests; these include the Redbacked Coly, *Colius castanotus*, which has a limited distribution in western Angola, but the other nine have wide ranges. A further six species are widespread in both lowland and montane forest, *Tauraco corythaix*, *Chlorocichla flavicollis*, *Phyllastrephus fischeri*, *Turdus pelios*, *Cossypha heuglini* and *Cisticola erythrops*. Only the barbet *Gymnobucco calvus* is typically a species of the Guinea forests and is found also in lowland forest in Angola at Ndala Tando and Canzele. Three other species, *Batis margaritae*, *Seicercus laurae* and *Cossypha bocagei*, are found elsewhere only in patches of lowland evergreen

forest of the southern Congo and the north of Northern Rhodesia, and the *Cossypha* also at Leba. Two species are limited to forest in Angola, *Francolinus swierstrai* from Mombolo, Hanha (the type of *Francolinus cruzi*, presumed forest), and Humpata (Rudebeck), and the flycatcher *Dioptrornis brunneus* only from Pungo Andongo and Humpata (Rudebeck), though this species is clearly closely allied to the montane species of East Africa, *D. fischeri* and *D. chocolatina*. The Greater Double-collared Sunbird, *Cinnyris afer*, has a unique distribution, being found, like the *Dioptrornis*, at Leba and Pungo Andongo, but also with other races on the highlands of Ruwenzori, the eastern Congo, Nyasaland and the lowland forest in South Africa. A Table is

Table of Distribution of Montane Forest Species

	Caprimulgus poliocephalus	*Heterotrogon vittatus*	*Viridibucco coryphaca*	*Pseudoalcippe abyssinicus* (including *atriceps*)	*Bradypterus mariae*	*Apalis cinerea* (excluding *alticola*)	*Poliospiza burtoni*
Moco and Mombolo	x	x	x	x	x	x	x
Fernando Po	—	x	—	y	—	x	—
Cameroon Mt.	—	x	y	y	y	y	y
Mts. of north Cameroons	—	x	y	y	y	y	y
Ruwenzori area	y	y	y	—	—	—	x
Mts. of Kivu and L. Edward	y	y	y	y	—	—	x
Mts. east of L. Tanganyika	—	—	—	x	—	—	x
Mts. of Abyssinia	y	—	—	y	—	—	—
Mts. of East Africa	y	y	—	y	y	y	y
Mts. of S. Sudan	—	—	—	y	—	—	—
Mts. of north Nyasaland	y	y	—	y	y	—	—
Mts. of south Nyasaland	—	y	—	y	y	—	—

x, same subspecies as on Mt. Moco. y, different subspecies from Mt. Moco.

provided to show the distribution of the other seven species, all of which are confined to montane forest and are representatives of the relic montane fauna discussed by Chapin (1932 : 285) and Moreau (1952 : 888). The Angola population is subspecifically distinct in only four of these species in spite of the distance separating it from the nearest mountains in the Cameroons and Nyasaland.

The distribution of the birds found in the escarpment forest at Gabela and in the forest at Chingoroi emphasizes their northern association. Some, such as the shrikes *Chlorophoneus multicolor* and *Lanius mackinnoni* and the wattle-eye *Dyaphorophyia concreta*, range from West Africa along the northern edge of the Congo forest to East Africa, though with by no means a continuous distribution. The bluebill *Spermophaga ruficapilla* follows the southern edge of the forest to East Africa, while the akalat *Malacocincla fulvescens* and the greenbul *Andropadus latirostris* embrace both ranges. Two other greenbuls *Chlorocichla falkensteini* and *Phyllastrephus fulviventris*, the Red-crested Turaco, *T. erythrolophus*, and the bush-shrike

Telephorus viridis have limited ranges in the west from the Gulf of Guinea to their southern limits at Chingoroi. The Crimson-wing, *Cryptospiza reichenovii*, is found unexpectedly at Gabela rather than on Mt. Moco since it is a montane forest species in the Cameroons, Fernando Po, and in most of East Africa.

The most striking feature of the distribution of the Angola forest birds is the almost completely different avifauna of Mt. Moco and Gabela, the only species obtained by ourselves and/or Heinrich in both forests being the wide-ranging Tambourine Dove, *Turtur tympanistra*, the bush-shrike *Telephorus viridis*, and *Colius castonotus*. This is the more surprising in view of the small percentage of Moco birds that are elsewhere restricted to mountains, others being found in the northern forests of Pungo Andongo, Ndala Tando and Canzele where most of the Gabela species are also found. The two localities are only 120 miles apart and the one-time montane forests of Mombolo were even closer to Gabela. Since the montane forest is recognized as being older than the lowland forest of the Congo Basin (Moreau 1952 : 908) it suggests that the escarpment forests may also be of a relic type but have been more subject to invasion by lowland species from the north than the more isolated montane forest.

The distribution of the birds also points to interesting affinities between the forest remnants in the Leba and Humpata areas and the montane forest of Mt. Moco, and also between the montane forest and some forest patches of north-western Northern Rhodesia.

Grassland Birds (*Table III*)

The distribution of the grassland birds found in Luacano and Vouga is quite fascinating and, to me, inexplicable. Typical species of these grasslands are the three longclaws, *Macronyx ameliae*, *M. fülleborni* and *M. grimwoodi*, the widow *Coliuspasser progne*, and the Angola Lark, *Mirafra angolensis*, all found at both places ; the Spike-heeled Lark, *Certhilauda albofasciata*, though collected by us only at Vouga as been found also in the eastern districts near Vila Luso. Thollon's Chat, *Myrmecocichla tholloni*, was found at Vouga only, and *Francolinus albogularis* at Luacano only. All of these, when present in the area, were found within short distances of each other and would therefore be expected to have the same requirements and therefore similar ranges throughout Africa, yet each is completely different. Among the longclaws the yellow *M. fülleborni* is the local variant in Angola, Northern Rhodesia, and the southern Congo of the widespread *M. croceus* ; the redthroated *M. ameliae* is primarily an East African species spreading westwards through Northern Rhodesia to its western limit in central Angola ; the larger *M. grimwoodi* was known only from north-western Northern Rhodesia until we found it first on the road to Luacano and later as far west as Vouga.

The Angola Lark is confined to the highlands of central Angola. the grasslands of the Zambesi/Congo watershed and north-western Northern Rhodesia, and the Marungu highlands of the south-eastern Belgian Congo. The Spike-heeled Lark is essentially a bird of the dry western semi-desert areas of South West Africa, and the pans and grasslands of Bechuanaland and the Transvaal. It has recently been found by Rudebeck on the Humpata plateau and in the coastal strip north of Moçamedes.

The francolin is West African, known for a long time only from scattered localities in the hinterland from Senegal to Nigeria, but recently discovered on the Marungu highlands, eastern Belgian Congo and in the Balovale area of Northern Rhodesia.

Thollon's Chat is limited to the grasslands of the western plateaux of the French Congo and Angola, between the equator and 13° S.

The Long-Tailed Widow has a broken distribution, being found on the highveld grasslands of the Transvaal and neighbouring provinces, in a strip across central Africa from Lake Bangweola to central and southern Angola, and in the highland grasslands of Kenya.

From our own limited observations and from those of C. W. Benson (in litt.), and C. M. N. White (1958) in Northern Rhodesia it seems that even in very limited areas the grassland species are segregated to a large extent by preference for moister or drier conditions. Thus the Spike-heeled Lark, *C. albofasciata*, a species with a preference for sandy soil, short grass, and poor vegetation, was found at Vouga on the higher, and therefore well-drained, parts of the undulating grasslands east of the village. It may be this factor of drainage which enables these larks to tolerate here an unusually high rainfall, over 40 inches a year, whereas in most of their range the rainfall is under 10 inches a year. Similarly, lack of good drainage on some of the flatter grasslands of the eastern districts would account for their absence there.

M. angolensis seems to require rather moister conditions than the Spike-heeled Lark, being collected at Vouga on the edges of the marshy valleys and by White at Balovale on the midslopes of the Minyanya plain. At Minyanya the ecological place of the Spike-heeled Lark on the upper slopes is filled by *M. africana*, which was found alongside *M. angolensis* at Luacano, where the limited amount of grassland in the surrounding districts and the uniform flatness of the plains may have brought the species together through lack of their preferred habitats.

The francolin, longclaws and widow-bird were associated with the dampest areas of the grasslands. The widows were in flocks along the ditches at Luacano, though in north-eastern Northern Rhodesia Benson found them associated with *M. africana* on the drier grasslands. All the longclaws were collected in similar conditions in very rank grass and in the marshy valleys. They seemed in Angola to be competitive species since all had been feeding on grasshoppers and beetles : Benson, however, found that the yellow species *fulleborni* and *croceus* in Rhodesia prefer drier parts than do the red-throated species, *M. ameliae* and *M. grimwoodi*. It may be that the widespread yellow species are more adaptive to differing conditions than the red-throated species, especially *M. grimwoodi*.

Some of the francolins were found to have been eating frogs and fish, the latter possibly among those that had been left stranded with the drying up of the summer floods. It is most improbable that fish or frogs form an essential part of the diet of *F. albogularis* (others collected by Serle in Nigeria had been feeding on cassava), but high rainfall does seem to be a primary requirement for the species since the range lies entirely in the area between the 40-inch and 60-inch isohyets.

It is easy to see therefore, why all the species of the wetter parts of the grassland should be absent from the dry grasslands of south-western Africa, but not apparent why each should have such differing ranges within the wetter areas, the broken

distribution of *Coliuspasser progne* being particularly surprising.

From our observations of Thollon's Chat it would seem unlikely to be found except where there are occasional small trees or bushes on which to perch, these perches being used as observation posts to which the birds returned time and again after foraging. Lack of suitable perches would account for their absence on the Luacano plains, and if all the grasslands of the eastern districts are similar to those we crossed, this may be the limiting factor in distribution of the species eastwards.

Among other families classed in Table III are many cisticolas and members of the Finch family that are birds of grasses and reeds rather than open grassland. Most of these are wide-spread but many of them have local and very distinctive races in central and western Angola.

Birds of the Western Thornbush, Semi-desert, Rocks and Tangled Thickets (Table IV)

In contrast to the complexities of distribution among the grassland birds of the central and western districts the ranges of all western species follow regular and comprehensible lines governed by the topography of south-western Africa and the limits of the thornveld. Thus, with the exception of *Euplectes aurea* which was possibly introduced from São Tomé, all the species collected in the semi-desert areas are found in similar areas in South West Africa, though in many cases are racially distinct.

Typical thornveld species such as the Pied Barbet, *Tricholaema leucomelas*, and the gregarious larks such as *Eremopterix verticalis*, have a wider distribution through the Kalahari and have been found, or can be expected, in Angola as far north as Luanda (see Serle, 1955), while species more typical of the Vornamib scrub such as Schlegel's Chat, *Karrucincla schlegeli*, are unlikely to be found north of Lobito.

Similarly, among the rocks of the Chela escarpment are such species as the Pale-winged Starling, *Onychognathus nabouroup*, the rock-jumper, *Achaetops pycnopygius*, and the Chat-flycatcher, *Lanioturdus torquatus*, all of which have limited ranges in the highlands of south-western Africa. The range of the indigenous *Xenocopsychus ansorgei* is even more limited, being apparently restricted to the rocks of the Chela escarpment and in the neighbourhood of Mt. Moco.

The overall pattern is of the predominantly South West African avifauna petering out northwards along the coast and the edge of the escarpment.

AVIFAUNAL ZONES AND SPECIATION

Avifaunal Zones

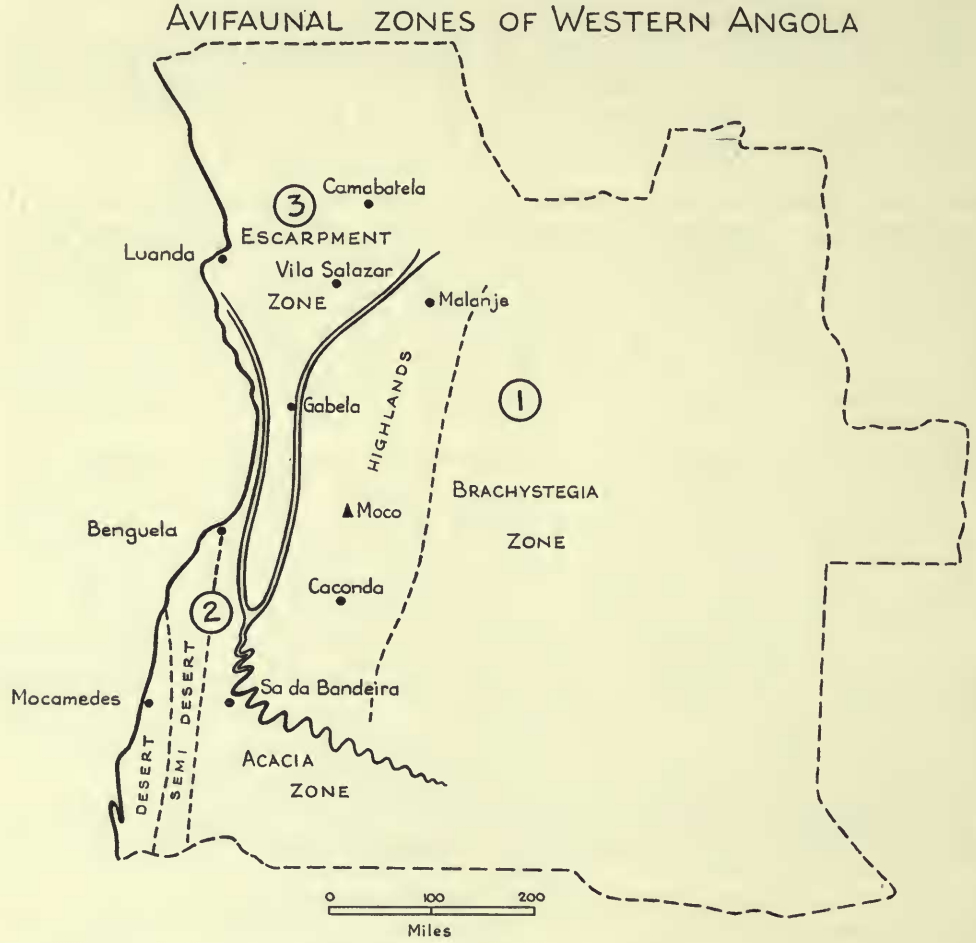
The distribution of birds found in the different types of vegetation has been discussed at some length because it seems that an understanding of this factor is primarily important in assessing the relationship between many forms found in Angola. Repeatedly it will be found that birds of many different families have similar specific or sub-specific ranges which lie along the same boundaries and coincide with the limits of one or another type of vegetation.

Thus western Angola can be divided into three avifaunal zones (see Map) :—

Zone 1. Above the escarpment and coinciding with the limits of Brachystegia woodland from the Sá da Bandeira area north at least to Malanje. This I shall call

the Brachystegia Zone and in it East and Central African species and subspecies predominate.

Zone 2. The Acacia Zone, including the desert and semi-desert and poorer parts of the coastal plain, and the thorn country on top of the escarpment south and west of the Brachystegia Zone. In this South West African species and subspecies predominate.



Zone 3. The north-western coastal lowlands where a richer and more varied vegetation is found than in Zone 2, and the escarpment area including the escarpment forests. This I shall call the Escarpment Zone. Little collecting was done in it except in the forests at Chingoroi and Gabela and therefore the distribution of birds, other than forest species, has not been discussed; it would seem however to contain a number of interesting endemic forms about which much remains to be learnt. These include the two newly-discovered species *Prionops gabela* and *Muscicapa gabela*, both found originally in secondary forest and the *Prionops* since found in thickets below the escarpment: also the warbler, *Macrosphenus pulitzeri*,

known only from the type specimen, and the forest greenbuls, *Chlorocichla falkensteini* and *Phyllastrephus fulviventris*. Among endemic forms are three which have been discussed in the Systematic Notes, *Malaconotus hypopyrrhus blanchoti*, *Camaroptera brevicaudata harterti* and *Tchitrea melampyra bannermani*.

The Escarpment Zone may even be found to extend in pockets as far south as Vila Arriaga and Capangombe as has been suggested in the Systematic Notes in the discussion on the distribution of the two races of *Lamprocolius mevesii*.

The interest of these zones lies in the fact that the zonal limitations are applicable to some birds that are not primarily associated with the typical vegetation ; for example *Cercomela familiaris* is a bird of rocks and kopjes rather than woodland or thornbush, but the two races *falkensteini* and *angolensis* are confined respectively to the Brachystegia and Acacia Zones. Similarly, the Black Tit, *Parus leucomelas insignis*, is found only outside woodlands in clearings or thickets but its true range is limited to Brachystegia Zone with an atypical population in the Escarpment Zone but not probably in the forest. It should, in fact, be emphasized that the zonal limits of the Escarpment Zone probably apply less to typical forest birds than to others, for several forest species are found in patches of riverine forest and in montane forest, within the Brachystegia Zone.

On the Map the zig-zag line dividing Zones 1 and 2 is intended to indicate that the two zones interlock where patches of Acacia and Brachystegia alternate. Some sub-divisions of Zones 1 and 2 have been shown, which were indicated in the discussion on distribution. No attempt has been made to define the zonal limits in the northern and south-eastern parts of the country from which little or no information on the birds is available.

Speciation

The rapid changes of vegetation and of altitude in the west of the country which are responsible for forming the zonal boundaries and the pockets of forest, allow closely related forms associated with specialized habitats to live in proximity without interbreeding. These forms can either be closely allied species or subspecies. A typical example of representation by species is found in the Batis flycatchers, in which *B. molitor* is the representative in the Brachystegia Zone, *B. pririt* in the Acacia Zone, *B. minulla* in the Escarpment Zone and possibly also in riverine forest in the north, and *B. margaritae* in montane forest, while the two races of shrike, *Lanius collaris capelli* and *L. c. subcoronatus* provide examples of subspecies in the Brachystegia and Acacia Zones which do not apparently intergrade.

Between good species like those of the genus Batis and subspecies like the shrikes there are other couplets or triplets of zonal representatives or forms ecologically separated whose relationship cannot confidently be defined. It would seem that through segregation they are in the process of developing into good species and are at varying stages in the process.

In recent studies on various African birds the problem has been discussed of forms which behave as good species in one part of their range and as subspecies elsewhere, by authors such as Chapin, Moreau, Benson, White and Stuart Irwin. It will be found that for most of the birds considered western Angola is a critical

area in which speciation seems more advanced than in other parts of Africa, and it is hoped to develop this conception more fully in a later paper. Meanwhile the following list attempts to place in order some Angolan pairs or groups according to their degree of speciation, with the examples heading the list of forms that are no more than well-differentiated subspecies, grading through those of more doubtful relationship to some that behave as true species at the end of the list. Some of these pairs are zonal representatives, for the others there is some other ecological factor causing segregation which is indicated if possible. Reference is also made to papers in which the relationship has been discussed.

The conventions of trinomial nomenclature compel one to make a dividing line between pairs considered subspecies and pairs considered species, although for forms in the centre of the list there are arguments for and against either treatment ; it seems impossible to attain consistency since each problem is different and is aggravated by lack of data on such characters as voice, behaviour, nest and eggs. Far more also will be known about the relationship between some of the pairs in the Brachystegia and Acacia Zones when adequate collecting has been done along their boundary in the south and south-eastern districts of Angola.

Only in one example quoted, the Spur-fowl, *Pternistes afer*, does it seem possible that the process of speciation has been reversed and that, instead of forms evolving differences through isolation in different habitats, two very dissimilar forms *afer* and *crainchii*, which once may have appeared good species, have come together and hybridized and must now be considered conspecific. This suggestion of hybridization is put forward tentatively since this is the only case in western Angola in which intermediate populations are found, not apparently associated with vegetational changes, linking two highly differentiated forms of the thorn and Brachystegia country. Furthermore, these intermediate populations (to which the names *benguellensis* Bocage, *chio* Meise, and *cambatelae* Meise, have been given) show a degree of individual variation more commonly associated with hybrid populations than with populations of an established species.

Examples of Stages of Speciation

Erythropygia leucophrys manda (bushes in Zone 1) *Erythropygia l. ovambensis* (bushes in Zone 2)	Subspecies showing intergradation.
Prodotiscus i. insignis (Zone 3, forest ?) *Prodotiscus i. lathburyi* (Zone 1, highlands) *Prodotiscus i. zambesiae* (elsewhere)	*P. i. lathburyi* a subspecific link between, *insignis* and *zambesiae*.
Zosterops senegalensis quanzae (highland in Zone 1) *Zosterops s. anderssoni* (Zone 2) *Zosterops s. heinrichi* (Zone 3)	Subspecies showing intergradation. See Moreau, 1957, and Systematic Notes.

Pternistes afer afer (Zone 2) *Pternistes afer crainchi* (Zone 1)	Well-marked forms linked through hybrid populations. See above, and Bowen, 1930.
Prinia flavicans bihe (bushes on Vouga grasslands, Zone 1) *Prinia f. ansorgei* (thornbush, Zone 2)	Probably well-defined subspecies, isolated from each other. See Irwin, 1959.
Mirafra africana occidentalis (grasslands of Zones 2 and 3) *Mirafra a. kabalii* (grasslands of eastern Zone 1)	Well-differentiated forms probably subspecies : widely separated geographically. See Systematic Notes.
Nilaus afer affinis (highland Brachystegia, Zone 1) *Nilaus a. brubru* (thornbush, Zone 2)	Well-differentiated forms often considered species but with some intergrades recorded.
Laniarius luhderi amboinensis (escarpment forest ?, Gabela, Zone 3) *Laniarius l. brauni* (escarpment forest, Quicolungo, Zone 3)	Exceptionally well-differentiated forms about which little is known.
Eremomela icteropygialis polioxantha (woodland in Zone 1) *Eremomela i. puellula* (thornbush in Zone 2) *Eremomela salvadorii* (woodland Zone 1)	The first two well-defined subspecies ; *salvadorii* probably a closely related species overlapping in range. See Systematic Notes.
Lanius collaris capelli (bushes in Zones 1 and 3) *Lanius c. subcoronatus* (bushes in Zone 2)	Well-defined forms with close ranges but no recorded intergradation.
Malaconotus hypopyrrhus monteiri (Zone 3) *Malaconotus h. interpositus* (bushes, Zone 1)	Well-defined forms with close ranges but no recorded integradation. See Systematic Notes.
Lamprotornis mevesii mevesii (mopane belt, Zone 2) *Lamprotornis m. benguelensis* (southern tip of Zone 3)	Well-defined forms living in very close proximity ; no apparent intergradation. See Systematic Notes.
Cercomela familiaris falkensteini (rocky hills in Zone 1) *Cercomela f. angolensis* (kopjes in Zone 2)	Well-defined forms living in very close proximity; no known intergradation.
Camaroptera brevicaudata harterti (forest undergrowth, central Zone 3) *Camaroptera b. sharpei* (undergrowth, Zone 2 and southern Zone 3) *Camaroptera brevicaudata* near *sharpei* (undergrowth, Zone 1) *Camaroptera b. tincta* (undergrowth, northern Zone 2)	*harterti* possibly a species. See Systematic Notes.

Tchitrea melampyra bannermani (forest, Zone 3) *Tchitrea viridis plumbeiceps* Zones 1 and 2, also 3 outside forests)	Possibly hybrid populations originally, now re-established as sympatric species. See Systematic Notes.
Passer griseus griseus (habitations—widespread) *Passer diffusus diffusus* (away from habitations, Zones 2 and 3)	Well-differentiated forms with possibly overlapping ranges. See White & Moreau, 1958, and Benson, 1956.
Lagonosticta landanae (Zone 3 and western Zone 1) *Lagonosticta rubricata congica* (eastern Zone 1)	Well-differentiated forms with close ranges in Lower Congo: considered conspecific by Chapin.
Parus niger carpi (Zone 3 outside desert and semi-desert) *Parus leucomelas insignis* (typical) (Edges of woodland, Zone 1) *Parus leucomelas insignis* (atypical) (Zone 3)	*carpi* a well-differentiated form living in close proximity to *P. leucomelas*. See Hall, 1959.
Parus griseiventris (woodlands in Zone 1) *Parus afer benguelae* (semi-desert, Zone 2)	*griseiventris*, probably good species known to overlap elsewhere with *P. afer*, but possibly isolated from it in Angola by the Mopane belt. See Hall and Traylor, 1959, and Irwin, 1959.
Laniarius aethiopicus major (undergrowth in woodlands, Zone 1) *Laniarius bicolor guttatus* and *sticturus* (undergrowth, reeds etc. in Zones 2 and 3)	Probably good species known to overlap elsewhere through geological segregation, living in close proximity in Angola. See Hall, 1954.
Pycnonotus nigricans (Zone 2) *Pycnonotus barbatus* (Zone 1)	Apparently good species but with possible hybridization in western Angola. See Irwin, 1958.
Elminia albicauda (woodlands and forest, Zone 1) *Elminia longicauda loandae* (forests, Zone 3)	Species living in close proximity on the zonal boundary.
Prionops gabela (forest and thickets, Zone 3) *Prionops retzii* (elsewhere)	Closely allied species, but with little data on their relationship.
Turdus libonyanus verreauxi (woodland and bush) *Turdus pelios bocagei* (forests of west) *Turdus olivaceus stormsi* (forests of east)	*T. libonyanus* a good species ecologically segregated from the others which are possibly conspecific.
Monticola angolensis (woodland and bushes, Zone 1) *Monticola brevipes* (rocky terrain, Zone 2)	Good species, closely related, representative of each other in their respective Zones.

BREEDING SEASONS IN ANGOLA

General Discussion

From a collection such as this, taken only during the months of August and September and with a limited number of specimens of each species, generalizations on the regular breeding seasons must necessarily be limited ; nevertheless some useful data are provided by the presence of young birds and by the condition of the gonads and plumage, as to the probable breeding months of individual birds. In the Tables of Specimens Collected an estimate of the approximate breeding month has been made in all cases in which there appears to be sufficient evidence to warrant it. Nest with eggs, and young birds not fully grown, provide the only incontrovertible evidence—these young birds are listed in the Tables as " juvenile ;" young birds, fully grown, are classified as " immature." Some of these immature birds, still with considerable amounts of young plumage, also give some certainty within one or two months, especially when they are supported by adults in post-breeding moult. The estimated breeding month of these, as with juveniles and eggs, is put without a query in the Tables. The date of breeding of older, but still not fully adult passerines, is far more uncertain and has been indicated vaguely as ? May/June or ? June/July to show that it probably took place at the ends of the rains (see Table of Rainfall) or the beginning of the dry season rather than in the early or middle part of the rainy season.

Specimens in which the skull is not fully ossified are also classed as " immature ", but my knowledge of the length of time that full ossification takes in different families is too limited to allow me to make an estimate of breeding season on this evidence alone. Among sunbirds in particular a high proportion of apparently adult birds were noted as having ossification incomplete.

The condition of gonads and plumage has also been considered in conjunction, though it is appreciated that both can be misleading in birds of the tropics. Those specimens in worn plumage with active gonads have been considered as possible breeders in the month or two months following collection, i.e. in the early rains ; those in very fresh plumage, or post-breeding moult, showing no breeding activity, as possible breeders two months prior to collection, and therefore during the dry season or winter ; those with non-active gonads, in indeterminate plumage, non-breeding dress, or moulting from non-breeding dress have been classified as " summer " breeders on the assumption that they had not bred recently and are unlikely to do so before November.

On these estimates it is possible to make some cautious contributions to the tables of breeding activity in Africa published by Moreau (1950). It would be expected that Angola would fall into the regular pattern of the countries of southern Africa which have summer rainfall. In these countries, which include the Rhodesias, Nyasaland, and northern parts of the Union, the peak of breeding activity is found in September to December, that is in the early months of the rains and the two months preceding the rains, while in the dry winter months of May to August there is very little breeding activity except amongst birds of prey. In South West Africa, also an area of summer, but erratic, rains Macdonald (1957 : 30) found a progressive

retardation of the breeding season from south to north with evidence that birds of Damaraland and the Kaokoveld have a peak activity from December to March.

It was therefore unexpected to find evidence of considerable breeding activity in Angola in the dry winter months of June to August. Young birds of over fifty species were collected in August and September. These were found in all the main vegetational regions and were of widely assorted families. In addition nest and eggs were found in August of the Stone Chat, *Saxicola torquata*, and the martin *Petrochelidon rufigula*. Some rainfall figures relevant to the discussion are included in the Tables on p. 403 :—

Non-passerines

Comparatively few non-passerines were collected and these for the most part indicated the expected summer breeding seasons in all species in the eastern and central districts whether woodland, forest, or grassland, except for a juvenile *Cursorius temminckii* collected west of Munhango on 12th August, and a juvenile *Colius castanotus* on Mt. Moco. In the western districts, in the semi-desert areas, the courser, hornbill and coly were in post-breeding moult : in the grasslands and evergreen thickets juveniles were obtained of *Pternistes afer*, and *Francolinus levaillantoides*.

The passerines are best discussed by ecological groups and districts according to the Tables.

Passerines of the Savannah Woodlands (*Table I*)

The flycatchers, thrushes and warblers generally indicate an August/September or a " summer " breeding season, sometimes slightly in advance of the corresponding families in Rhodesia, but similar to them in relation to the onset of the rains which start a little earlier in Angola. The shrikes and finch family appear irregular with some dry-season activity. The sunbirds, as in Northern Rhodesia and the southern Congo, seem frequently dry-season breeders.

Passerines of the Forests (*Table II*)

In the eastern riverine forests a number of indications of early winter or late summer breeding is provided by immature but nearly fully adult specimens, with rare indications of spring or early summer activity. On Mt. Moco, on the contrary, most birds had active gonads in August, and the Striped Swallow, *Hirundo abyssinica*, and *Seicercus laurae* were observed apparently engaged in nesting activities. The only winter breeder was apparently the weaver *Hyphanturgus ocularis*.

In the western forests the indications were of a peak season in June/July, very few species collected not being represented by either a juvenile or immature specimen; many of the latter among the thrushes and finches were still largely in first plumage although the shrikes and bulbuls were apparently older, the indications of immaturity being in the bill colour, skull ossification, or in a few remaining immature feathers. It would therefore seem that in these patches of forest the birds of the trees and forest canopy have a breeding season slightly in advance of the birds of the under-

Some Rainfall Figures Relevant to the Discussion Measured in Inches, Less Than One Tenth of an Inch Shown as Trace " tr "

Rainfall in 1957 (Localities on the Expedition Route)

Locality	Years	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Year's total
Texeira de Sousa .	1957	10·2	5·9	9·6	0·3	?	—	—	?	2·1	4·8	3·6	8·3	44·8 plus
Nova Lisboa .	1957	6·5	5·9	6·7	2·8	tr.	—	tr.	tr.	2·0	2·6	9·2	13·1	48·8
Sâ da Bandeira .	1957	3·5	4·1	12·6	5·2	—	—	—	—	0·4	8·7	6·2	8·0	48·7
Lobito . .	1957	tr.	0·9	11·6	7·4	—	tr.	—	—	0·3	0·4	2·8	1·4	24·8
Gabela* . .	1957	1·5	5·3	11·8	5·5	—	—	—	—	0·4	2·9	4·8	5·4	37·6
Quimberima .	1957	First spring rains fell 27th September.												
Mt. Moco . .		No figures available : first spring rains fell very locally on 24th August.												

Monthly Averages in Eastern Angola and North-western Northern Rhodesia

Locality	Years	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Yearly average
Texeira de Sousa, 3,609 feet	1942–53	8·8	8·6	9·3	5·2	0·5	—	tr.	0·3	0·7	3·1	7·9	8·4	52·8
Mwinilunga, 4,447 feet	1921–55	8·9	8·0	8·1	3·3	0·3	0·1	tr.	tr.	0·6	3·7	7·5	9·5	50·0
Balovale, 3,577 feet	1920–55	8·5	6·9	5·8	1·2	tr.	—	—	tr.	0·3	2·3	4·4	8·9	38·3

Monthly Averages in Central Angola

Locality	Years	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Yearly average
Nova Lisboa, 5,577 feet	1940–54	8·7	7·8	9·8	5·7	0·4	—	tr.	tr.	0·6	5·5	9·6	8·9	57·0
Ganda, 4,790 feet, 55 m. N.E. of Chingoroi	1924–52	7·0	7·1	10·9	6·1	5·4	—	—	tr.	1·1	6·0	9·3	8·7	61·8
Gabela,* 3,586 feet	1947–55	2·9	4·6	6·8	10·2	1·4	—	—	tr.	0·3	2·0	5·0	3·4	36·6
Quimberima, 3,700 feet	1954–57 (Aug.)	4·4	1·1	7·7	8·5	0·8	—	—	—	1·4	5·5	10·0	5·8	45·2

Monthly Averages in South-western Angola and South West Africa

Locality *Coastal*	Years	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Yearly average
Lobito . .	1932–53	0·8	1·5	4·7	2·1	0·1	—	—	tr.	0·1	1·2	1·0	2·4	13·9
Mossamedes .	1930–53	0·3	0·4	0·7	0·5	tr.	tr.	tr.	tr.	tr.	tr	0·1	0·1	2·1
Walvis Bay . .	1916–50	tr.	0·2	0·3	0·1	0·1	tr.	tr.	0·1	tr.	tr.	tr.	tr.	0·9
Inland														
Sâ da Bandeira 5,860 feet	1932–53	5·9	6·2	6·6	3·7	0·1	tr.	—	—	0·2	2·8	4·4	6·3	36·2
Ondonga, 3,593 feet	1902–50	4·3	4·8	3·7	1·4	0·1	—	tr.	tr.	0·1	0·5	1·8	3·6	20·3

* Rainfall figures for Gabela refer to the town on top of the escarpment, not to the forest on the face where the precipitation is higher.

Compiled from the Meteorological Office Tables of Temperature, Relative Humidity and Precipitation for the World, Pt. IV, 1958, with additional figures supplied by the Meteorological Office, Harrow, and by Mr. O. Kroel for Quimberima.

growth and bushes. Unfortunately, Heinrich (1958) has few records of breeding activity for the same species collected at Gabela ; such as there are conform with the general pattern of our collections, with young birds of *Spermophaga ruficapilla* collected at the end of July, and other species noted as having inactive gonads in August. On the other hand, he records breeding activity in several of the same species collected in similar forest further to the north at Canzele in March/April, most notably young birds then being found of *Dyaphorophyia concreta, Lanius mackinnoni* and *Camaroptera brevicaudata.*

Passerines of Grasslands, Reeds and Open Country (*Table III*)

In the east and centre the larks, chats, pipits and long-claws of the grasslands at Luacano, Lake Dilolo, Vouga and along the road mostly appear to be summer breeders. The exceptions were the Red-Capped Lark, *Calendrella cinerea,* of which juveniles were collected early in August, and *Saxicola torquata* which was nesting at Vouga. The Cisticolas, without exception, were in non-breeding dress or in moult to breeding dress, showing themselves summer breeders, as Lynes found. Nests and eggs of *Petrochelidon rufigula* were found on the 10th August in contrast to the record from the Belgian Congo of breeding in April, and a specimen of *Hirundo senegalensis* in moult also suggests dry season breeding. The most surprising records however concern the bishops, widows and waxbills, among which are many young birds and adults moulting into non-breeding dress indicating a breeding season continuing at least into June. The same species in the southern Congo and Northern Rhodesia are mostly recorded as summer breeders finishing in May at the latest.

It is difficult to account for the contrasts and the similarities shown by different families in comparison with what is found in their relatives in adjacent countries, for example why the cisticolas should be normal and the bishops abnormal. The grass burning must inevitably affect the grassland birds ; this had mostly been completed in the east but was being carried out in August in the central highlands. It may be significant that it is the seed-eaters which had apparently finished breeding before the fires while the insect-eaters bred after the fires.

In the western grasslands among the few specimens collected was a young *Mirafra africana* in September, as well as the young Francolin already referred to.

On Mt. Moco the waxbills and cisticolas living in the rank grass of the mountain gullies also had contrasting breeding seasons, the waxbills breeding in winter (a number of young birds being obtained in August) and the cisticolas in summer.

Passerines of the Western Thornbush, Thickets and Semi-desert, (*Table IV*)

The number of specimens collected in the thornbush and tangled thickets on top of the escarpment in the south-west and on the road north from Lobito was limited, but it is apparent that the breeding season is very varied among the different species. In addition to the numbers of young spur-fowl seen and collected, young of *Laniarius bicolor, Fringillaria tahapisi, Apalis flavida* and *Alseonax cinereus* were collected in August, but other species, even in the same families, gave evidence of being summer breeders.

The pattern in the semi-desert of the coastal plain is very different, with a high proportion of species in very fresh plumage or post-breeding moult. In arid country such as this the plumage fades and abrades very quickly so that when a specimen is found to have very fresh colours and unabraded feathers it cannot long have completed moult and the breeding season can therefore be assessed with greater assurance than with birds living in more sheltered conditions. These birds collected in September seem likely to have bred in June/July, and are in comparable plumage to those collected in the Kaokoveld in May. This three months' difference was unexpected, since the dry coastal belt of Angola seems a natural continuation of the Namib and Vornamib of South West Africa with no natural barriers between (the break made by the Cunene can hardly have significance). It is too long also to consider as a further logical step in the retardation of the breeding season from south to north as noted by Macdonald.

However, the explanation may possibly lie in the rainfall figures for 1957, which show that in March and April there were exceptionally heavy rains at Lobito, 11·6 inches and 7·4 inches against an average over twenty-two years of 4·7 inches and 2·1 inches for the same months. The figures at Benguela are not so high, 7·6 inches in March and 3·3 inches in April, but are still exceptional for that coast. It seems quite probable that there would be heavy casualities among nests, eggs and young birds under these conditions, and that second broods were therefore reared. Data on breeding seasons in other years on this coast is badly needed before the problem is really understood ; a little is provided by specimens in the British Museum collected by Ansorge in 1905 among which are some of *Erythropygia paena*, *Plocepasser mahali* and *Passer motitensis* in post-breeding moult at the end of July, suggesting an earlier breeding season in 1905 than in 1957.

NEW RECORDS FOR ANGOLA AND EXTENSIONS OF RANGES

Species not Hitherto recorded from Angola

Francolinus albogularis meinertzhageni Luacano.
Francolinus sephaena zambesiae Leba.
Mirafra passerina Cahinde.
Macronyx grimwoodi Luacano area, Vouga.

Extension of Ranges in Angola

Poicephalus meyeri matschei Luacano (western extension).
Caprimulgus natalensis mpasa Lake Dilolo (western ext.).
Andropadus virens zombensis Luau R., Luacano (western ext.).
Alseonax c. cinereus 40 m. S. of Mumbondo (southern ext.).
Cossypha h. heuglini Luacano (western ext.).
Erythropygia leucosticta reichenowi Chingoroi (southern ext.).
Eremomela icteropygialis polioxantha Vouga, and 100 m. West of Vila Luso (western ext.).
Prinia subflava ovampensis Quipungo, Leba (northern ext.).
Campephaga q. quiscalina Chingoroi, (southern ext.).

Prionops gabela 40 m. S. of Mumbondo (second known locality).
Chlorophoneus nigrifrons manningi Luau R., (western ext.).
Cinnyris s. superbus Chingoroi (southern ext.).
Cyanomitra verticalis bannermani Luacano (western ext.).
Euplectes orix subsp? Lake Dilolo (northern ext.).
Lagonosticta rubricata congica Luau R., (western ext.).
Estrilda astrilde niediecki Vouga (northern ext.).
Hypochaera nigerrima Chingoroi (southern ext.).

New Races

It was found necessary to describe three new races, mainly on specimens from this collection. These were published in short papers as follows :—

Prodotiscus insignis lathburyi Hall, Bull. B.O.C. 78, 1958, p. 152 : Mt. Moco.
Mirafra angolensis antonii Hall, loc. cit. p. 153 : 5 m. east of Luacano.
Parus afer benguelae Hall & Traylor, Bull. B.O.C. 79, 1959, p. 12 m. SE. of Benguela.

Sight Records

Among species of interest seen but not collected were the Palm-nut Vulture, *Gypohierax angolensis*, common along the road between Lobito, Novo Redondo and the foot of the escarpment at Gabela. Hartlaub's Duck, *Pteronetta hartlaubii*, a pair on the Luau River ; the Bustard *Eupodotis senegalensis mackenziei*, at Vouga ; the Rufous-Bellied Heron, *Erythrocnus rufiventer*, about twenty-five of which spent the day in high reeds near a river at Lake Dilolo, flighting down to the main lake half a mile away at sunset. A few were also seen on a small lagoon on the Humpata plateau near Jau.

The Giant Blue Turaco, *Corytheola cristata*, was seen on the Luau River and at Gabela, both localities representing the southernmost limits of its range as known at present, the Luau River being an extension of the range shown by Moreau (1958 : map 4, p. 72).

Three other species seen at the southern limits of their ranges are Monteiro's Twinspot, *Clytospiza monteira*, at Gabela, the Shining Blue Kingfisher, *Alcedo quadribachys*, on the Luau River, and Boehm's Spinetail, *Neafrapus bohmi*, 80 m. south of Luanda.

SYSTEMATIC AND FIELD NOTES ON SELECTED SPECIES

In working on the systematics and taxonomy of the Angola collection the standard works on the birds of the neighbouring countries have all been consulted, Chapin (1932–1954) for the Belgian Congo, Benson & White (1957) for Northern Rhodesia, Hoesch & Niethammer (1940) and Macdonald (1957) for South West Africa, Roberts (1940) for South Africa—as well as the manuscript of Mackworth-Praed & Grant's " Birds of the Southern Third of Africa."

It is inevitable that all these authors do not always agree on systematic questions, especially the vexed one of " lumping " in genera and species. I have followed no

author consistently, using my own preference where there are differences. On the generic and specific levels I am conscious that I have not always been able to study the problems as deeply as is necessary to form a considered opinion ; I have perhaps been influenced by my mistrust of over-enthusiastic lumping, which I feel has sometimes been proposed to evade the necessity of making a decision. It is not, to me, necessarily sufficient reason for uniting two genera, that one species may show characters of both.

The subspecific status of all forms listed has been studied on the evidence of specimens in the British Museum, supplemented in many cases by information and loans from other Museums, most notably from Mr. M. A. Traylor and the Chicago Natural History Museum, where a large part of the Angola collection from the American Museum of Natural History is temporarily housed.

The Systematic Notes include any revisions that appear necessary of the accepted range of status of the various forms, and some notes on moults and plumage of the less well-known species.

Most of the field-notes on sunbirds were supplied by John Williams, and the majority on all other birds by Tony Archer and General Lathbury. Williams was also responsible for most of the detailed notes on food, derived from the contents of stomachs and crops ; but in the case of the turacos, some francolins, and *Xenocopsychus*, detailed analysis of the seeds and insects was made in the Botanical and Entomological Departments of the Museum.

Since the collection was made papers have been published on collections from Angola by Heinrich (1958), and Meise (1958). These contain field or systematic notes on many of the species we obtained and in selecting species in the following notes I have endeavoured to avoid duplicating information and to concentrate on those in which some contribution can be made to present knowledge of the bird in the hand or in the field. Data on all other specimens are, however, readily available in the British Museum should they be required.

With so many standard works now available on African birds it has not seemed necessary to provide other reference than the author's name and date to the forms discussed unless they have been recently described or the names newly brought into use. Type localities and measurements are included only when relevant to the discussion.

2. ***Francolinus swierstrai*** (Roberts), *Ann. Trans. Mus.* 13, p. 72, 1929 : Mombolo, Cuanza Sul. (syn. *Francolinus cruzi* Themido 1937 : Hanha, Benguela dist.).

Specimens

1 ♂, 1 imm. ♂. Mt. Moco 7,000 feet, 17–22nd Aug. Bill and legs orange red ; iris hazel. Wing ad. 184, imm. moult ; bill 32, 30 ; tail 103, 84 mm.

Field Notes

This rare francolin was found in or near pockets of forest on the upper slopes. One was found pecking about among fallen leaves in the undergrowth, the other

was flushed from the bank of a stream covered in thick bracken. It uttered a shrill harsh cry, not unlike that of *Francolinus jacksoni* O-Grant, and perched in a low tree. The crops contained seeds of two species of Leguminosae, one of which was a *Dolichos* or *Neorautanenia*, the other unidentified.

Systematic Notes

One of these specimens is an adult male with a long spur ; it is in worn plumage with some fresh feathers coming in on the head. The second is not quite fully adult, having a short blunt spur and some rusty edges to the wing-coverts, as described by Roberts for the type, which was also a young male. The young bird is mostly in fresh plumage with the primaries in moult and some fresh feathers coming in on the head. The gonads of both specimens were slightly enlarged.

3. ***Francolinus sephaena zambesiae*** Praed 1920 : Mesanague, Zambesi, P.E.A.

Specimen

1 ♀ Leba, 2nd Sept.

Systematic Notes

A soil-stained specimen but matching well in markings with the type and others of this race, of which *F. s. thompsoni* (Roberts) is considered a synonym.

4. ***Francolinus finschi*** Bocage 1881 : Caconda, Huila dist.

Specimens

1 ♂ 1 ♀ Mt. Moco 7,000 feet, 18–21st Aug.

Field Notes

These birds were collected and others were seen, often in pairs, in the Brachystegia woodlands on the upper slopes of the mountain, and on the bare slopes above the tree line. The female was one of a pair pecking about in burnt grass and leaves. The male had been feeding on buprestid beetles, larvae and beans.

Systematic Notes

These specimens have been compared with a male and female from Brazzaville, lent by the Museum d'Histoire Naturelle, Paris, and with a male in the British Museum from the watershed of the rivers Cuanza and Luando. The three latter are very similar in general appearance and in the extent of rufous in the wings. The Moco birds in comparison have less rufous in the wings, with none on the outer web of the first four primaries, and the rufous on the inner web not reaching to within 20 mm. of the tip on the first five primaries. It is possible that these differences may represent geographical variation.

7. ***Francolinus albogularis (?) meinertzhageni*** White, *Bull. B.O.C.* 65, 1944 p. 7 : Kumanu Plain, west Balovale, N. Rhodesia.

Specimens

2 ♂ 3 ♀ Plains near Luacano, 31st July–1st Aug.

Field Notes

Three of these White-throated Francolins were shot out of a covey of seven on an open grassy plain with no vegetation over a foot high. The others were a pair on a similar plain ; the female did not run or fly after the male had been shot. They had been feeding variously on beetles, grass seeds, small fishes and a small frog.

Systematic Notes

All are in worn plumage and stained with burnt grass. Even allowing for this the males appear to be darker, less rufous and more patterned with grey than the type of *meinertzhageni*. They show, in fact, much the same characters that distinguish the Luacano race of *Mirafra angolensis*, *M. a. antonii*, and it is possible that when better series are available from Angola and Rhodesia the Luacano francolins may also be found to represent a new race.

21. ***Tauraco corythaix schalowi*** (Reichenow) 1891.

Specimens

2 ♀ Mt. Moco 7,000 feet, 16th Aug.: 1 ♀ Leba, 2nd Sept.: 1 ♂ Chingoroi, 9th Sept.

Field Notes

It seems worth recording that at Chingoroi, where both *T. c. schalowi* and the Red-crested Turaco, *T. erythrolophus*, were found together, the crop of each was found to contain quite different types of seeds, that of *T. c. schalowi* being full of small black seeds, probably Molvaceae and possibly a species of *Sida*, and some unidentified flattened seeds ; that of *T. erythrolophus* seeds, possibly of the family Rubiaceae.

22. ***Tauraco erythrolophus*** (Vieillot) 1819.

Specimen

1 Chingoroi, 8th Sept.

Field Notes

This specimen was collected in not very thick forest bordering the stream. Others were seen later in the escarpment forest at Gabela. See under *T. c. schalowi* for crop contents.

Systematic Notes

Moreau (1958 : 104) includes Huila in the range of *T. erythrolophus* : he has asked me to make a correction to this since the specimen in the collection at Pittsburgh on which this was based is actually labelled " dist. Huila " and was collected the same day as another labelled " Chingoroi." Chingoroi lies just within the boundary of the Huila district : the Turaco has not otherwise been recorded further south than Chingoroi, nor does there seem suitable habitat for it, and that specimen must therefore be presumed to have come from Chingoroi.

33. ***Otus scops senegalensis*** (Swainson) 1837 : Gambia.

Specimen

1 ♂ 20 m. NE. of Novo Redondo, 14th Sept. Wing 125 mm.

Systematic Notes

This is a very small Scops Owl, very sandy in tone with fine vermiculations. In the British Museum it can be matched for colour with a specimen from Cape Town and several from West Africa. It seems very doubtful therefore if there are grounds for recognizing races on colour in a species with so much individual variation and I follow Mackworth-Praed and Grant (1952 : 650) in considering the majority of African Scops Owls as *O. s. senegalensis*. This sandy specimen refutes the suggestion that birds of western Angola can be recognized as a distinct grey race, *O. s. hendersoni* (Cassin), the type of which was obtained at sea off Novo Redondo.

36. ***Ciccaba woodfordii bohndorffi*** (Sharpe) 1884 : Semmio, Niam-Niam country, Belgian Congo.

Specimen

1 ♂ Luau R. 29th July.

Systematic Notes

Mackworth-Praed & Grant (1958 : 333) have already noted that, on the British Museum series of African Woodowls, there are ample grounds for recognizing *C. w. bohndorffi* as distinct from the darker *C. w. nuchalis* (Sharpe) of West Africa. This specimen fits well with the series of *bohndorffi* being a bright rufous, lighter on the mantle than any West African bird examined.

37. ***Semeiophorus vexillarius*** (Gould) 1838.

Specimen

1 ♂ Vouga, 11th Aug.

Systematic Notes

An unusually early record for a Pennant-winged Nightjar in the southern part of the continent. The pennants are still in sheath but nearly full grown (638 mm.).

38. ***Caprimulgus natalensis (?)mpasa*** Smithers, *Bull. B.O.C.* 74, p. 84, 1954 : Mpasa, Luwingu dist. N. Rhodesia.

Specimen

1 ♂ Lake Dilolo, 4th Aug.

Systematic Notes

On the upper parts this White-tailed Nightjar is a very close match with one from Balovale and slightly less grey than others from north-eastern N. Rhodesia. Below it has only traces of barring on the sides of the chest, unlike the heavily barred Rhodesian birds, and nearer in this character to the type of *C. n. fulviventris* Hartlaub, from Bembe, which differs otherwise in being rufous with light markings above.

39. ***Caprimulgus fossii*** Hartlaub 1857 : Gaboon.

Specimens

2 ♂ 2 ♀ Lake Dilolo, 5th Aug.

Systematic Notes

I follow Mackworth-Praed and Grant (1952 : 677) in not recognizing any races of the Gaboon Nightjar though I am not wholly convinced that a detailed study of a considerable series will support this view. From the available series it would appear that the population of Gaboon is consistently small with wings under 150 mm. and that all birds from the western parts of Africa tend to be greyer and less heavily marked than those from the east. At the same time individuals are found in South Africa as small as those of Gaboon and matching them in colour. If it is found necessary to recognize races our birds would probably be *C. f. welwitschii* Bocage.

41. ***Caprimulgus poliocephalus koesteri*** Neumann 1931 : Sandula, S. of Cassongue, Cuanza Sul/Huambo border.

Specimen

1 ♂ Mt. Moco 7,000 feet, 20th Aug. Wing 151, bill 19, tail 113 mm.

Field Notes

" Hawking from a dead branch over thick grass, bush and bracken bordering a small stream in the late evening." The stomach contained three beetles.

Although the single specimen was actually collected outside the forest patches it has been included among forest birds in the Tables since, from the known habits of other races, it seems likely to be associated with the forest.

Systematic Notes

I believe this to be only the second known specimen of *koesteri* and the first known male. Mr. J. C. Greenway kindly compared it with the type in the Museum of Comparative Zoology, Cambridge, Mass. and found that it differed only in having the outer webs of the first and second primaries more profusely spotted with pale brown, in having the seven pale brown bars on the inner webs of the outermost tail feathers more distinct, and in having the white tip of the outer tail feather larger, 53 mm. against 30 mm. All these differences are consistent with sexual variation and he confirms my view that the type of *C. koesteri*, which was unsexed but presumed to be a male, is probably a female.

Chapin (1939 : 413) was the first to suggest that *koesteri* might be conspecific with the Abyssinian Nightjar, *C. poliocephalus* Rüppell, and the forms *ruwenzorii* O-Grant, and *guttifer* Grote, of south-west Tanganyika and Nyasaland, all of them being exclusively mountain birds associated with montane forest. The Moco bird is, in fact, a very close match with the type of *ruwenzorii* which differs only in having rather more white on the throat and tail.

The type locality of *koesteri* has been given variously as " Chipepe, Bailundu," " Lebule, near Luimbale," and as " Luimbale." Mr. Greenway wrote me that Koester in a letter to Dr. Chapin in 1947 stated that the correct type locality is Sandula, south of Cassongue (about lat. 12° 15′ S.; long. 15° E.), at about 1,800 m.

43. ***Heterotrogon vittatus camerunensis*** Reichenow 1902 : Cameroons.

Specimens

1 ♂ 1 ♀ Mt. Moco 7,000 feet 18–21st Aug. Wing ♂ 123, ♀ 124 ; tail ♂ 150, ♀ 145 mm.

Systematic Notes

The two races of Bar-tailed Trogon generally recognized are distinguished on size. These two birds, and one quoted by Chapin (1939 : 486) from Moco with a wing of 122 mm. are rather larger than typical *camerunensis*, but best placed with it.

44. ***Apaloderma narina*** subsp. (?).

Specimen

1 ♀ 12 m. S. of Gabela, 18th Sept. Wing 133 ; tail, second innermost rectrices 143, central pair in moult.

Systematic Notes

Other trogons collected at Quela, Gabela and Huila have been referred to *A. n. brachyurum* Chapin, by Heinrich (1958 : 335) but one from " Amboim " (i.e. Gabela)

discussed by Sick (1934 : 168) is possibly intermediate between *A. n. brachyurum* and *A. n. narina*. Our Gabela female is short-tailed, as *brachyurum*, but closest to *narina* in the colour of the breast and chin, which are a clear light brown with rufous tinges, but it differs from most specimens of *narina* in having only a faint suggestion of the greyish band that usually separates the pink of the abdomen from the breast.

45. ***Colius striatus congicus*** Reichenow 1923 : Lupungum, in Lomamu dist. Belgian Congo.

Specimen

1 ♂ Luau R., 30th July.

Systematic Notes

This Speckled Mousebird agrees in all repects with *C. s. congicus*, and the colour of the iris was noted as being apple green.

47. ***Colius castanotus*** Verreaux 1855.

Specimens

2 ♂ 2 ♀ 1 juv. ♂ Mt. Moco 6,000–6,500 feet : 1 ♂ Chingoroi 8th Sept. 1 ♂ 20 m. NE. of Novo Redondo, 14th Sept.

Field Notes

The Red-backed Mousebird was fairly common on Mt. Moco in the forests and woodlands, it was also common where the Novo Redondo-Gabela road ran through hilly country with a covering of *Euphorbia* and thorn trees.

Systematic Notes

The young bird differs from the adults in having light red-brown edges to the wing-coverts and a dark brown, instead of a yellow-green, eye.

48. ***Lybius torquatus bocagei*** (Sousa), *Jorn. Ac. Real. Sci. Lisboa*, 11, p. 958, 1886 : Caconda, Huila dist.

Specimens

1 ♂ 1 ♀ Luau R., 28–30th July : 3 ♂ Mt. Moco 6,000 feet, 21st Aug. Wings 4 ♂ 89–94, ♀ 88.

Field Notes

One male collected on Mt. Moco was found, when collected, to have its tail bent sideways, presumably from incubating in a confined space since it is in post-breeding moult. The other two Moco birds are in worn plumage.

Systematic Notes

Clancey (1956 and 1958) has reviewed the races of the Black-collared Barbet in southern Africa. I cannot agree with him that variation over this area is great enough to warrant the recognition of five races. Treating the species on broader lines I would recognize (1) *L. t. torquatus* (Dumont) from South Africa, distinguished by the yellow of the underparts being mixed with darker markings and vermiculations. (2) *L. t. bocagei*, synonym *L. t. congicus* (Reichenow), of Angola east to Luau R., with underparts less heavily marked than *torquatus*. (3) *L. t. zombae* Shelley, synonyms *L. t. lucidiventris* Clancey, and *L. t. pumilio* Grote, from Nyasaland, southern Congo, the Rhodesias, N. Bechuanaland, Portuguese East Africa and parts of Tanganyika, with clear yellow underparts.

The five specimens obtained have all some dark vermiculations below and match well with a Caconda specimen in this respect. Above they show considerable individual variation particularly between the male and female from Luau R. the male being greyish on the mantle and coarsely vermiculated, the female brownish and finely vermiculated ; this variation does not seem to be sexual.

49. (a) ***Buccanodon anchietae anchietae*** Bocage 1869 : Caconda, Huila dist.
(b) ***Buccanodon anchietae rex*** Neumann 1908 : Duque de Bragança, Malanje dist.
(c) ***Buccanodon anchietae katangae*** Vincent 1934 : Kaluli R. Katanga.

Specimens

(*a*) 1 Caconda, 27th Aug.: (*b*) 1 ♂ Mt. Moco 6,000 feet, 18th Aug.: (*c*) 1 ♂ 20 m. N. of Lake Dilolo, 3rd Aug.: 1 ♂ 1 ♀ 28 m. N. of Vila Luso, 8th Aug. Wings (*a*) 95. (*b*) 1 ♂ 94. (*c*) 2 ♂ 87–88, 1 ♀ 88 mm.

Systematic Notes

On these specimens the three races of Anchietas Barbet are recognizable on the colour and pattern of the yellow on the crown. In *anchietae* and *rex* the yellow is purer, less greenish than in *katangae*, and in *rex* it does not extend to the hind crown which is solid black. There are no topotypical specimens of *rex* in the British Museum and this is the first to answer to the description. Chapin gives the Bailundu district within the range of *rex* and it is probable that Moco is on the southern limit since another specimen from there in the Museum has not got the characters so well defined. The extent of yellow on the breast is slightly greater in *katangae* than in the other specimens.

50. ***Gymnobucco calvus vernayi*** Boulton 1931 : Mombolo, Cuanza Sul.

Specimens

2 ♀ Mt. Moco 7,500 feet, 20th Aug.

Field Notes

One of these Naked-faced Barbets was collected from a party of three in a forested valley. It had been eating crickets and beetles but no fruit.

53. ***Viridibucco coryphaea angolensis*** Boulton 1931 : Mombolo, Cuanza Sul.

Specimens

1 ♂ 1 ♀ Mt. Moco 7,000 feet, 17th Aug.

Field Notes

Although this Tinker-bird is normally associated with mountain forest one bird was found away from the forest patches in some small isolated trees in open rocky country. It drew attention to itself with a soft piping call. It had been feeding on *Loranthus* fruits.

Systematic Notes

The female was preserved in salt : in comparison with the male it is greyer below lacking the yellow green wash, and above the yellow on the mantle and nape is paler appearing rather bleached. In my opinion these differences may be due to the action of the salt, since no sexual differences have been recorded in this species and none are apparent in a series of the nominate race.

55. (a) ***Indicator minor minor*** ≷ ***conirostris***

(b) ***Indicator minor damarensis*** (Roberts) 1928.

Specimens

(*a*) 1 ♂ Luacano, 3rd Aug.: (*b*) 1 ♀ Leba, 31st Aug.

Systematic Notes

The specimen from Luacano is interesting since it shows some approach to the darker more heavily streaked form *conirostris*, that was long considered a distinct species, and I have been fortunate in being able to discuss with Dr. H. Friedmann some of the problems of relationship between the two forms and to examine with him the series in the British Museum. Specimens have also been borrowed from Tervuren and Chicago. *I. m. conirostris* (Cassin), is a bird of the tropical forests of West Africa and the Congo and is found also in isolated pockets on Ruwenzori and Mt. Elgon within the range of other forms. Surrounding the range of *conirostris* are more lightly streaked forms living in savannah woodlands, *I. m. riggenbachi* Zedlitz, of West Africa to the Sudan, *I. m. minor* Stephens, of East and South Africa, and *I. m. damarensis* of South West Africa, the palest form. Between the two groups from localities encircling the range of *conirostris*, individuals have been taken which show some intermediate characters. Some of these from the base of Ruwenzori

have been recorded by Chapin (1939 : 543), others from Owerri in southern Nigeria were described as *I. conirostris pallidus* Marchant. Other specimens showing intermediate characters in some degree have been examined from Tibati, N. Cameroons ; Ibembo, Lower Uelle ; Tembura, Bahr-el-Ghazal district, Sudan ; Kabalo, Tanganyika district, eastern Belgian Congo ; Kasaji, south-western Belgian Congo ; Luacano ; Mt. Soque, near Luimbale, central Angola. The Luacano bird was collected on the edge of the riverine forest ; birds in the type series of *pallidus* were recorded as confined to high forest or broken forest ; the bird from Mt. Soque was collected in montane forest (Heinrich 1958 : 336) ; it therefore seems possible that all the intermediates are associated with some type of forest, or remnant of forest, rather than with woodland. This would perhaps account for the presence at Tibati of two apparently different forms, the intermediate specimen already referred to, and the type of *riggenbachi*. This type has not been examined since it was matched by Chapin (loc. cit.) with a specimen in the British Museum from the Shari River.

There seems little to be gained by attempting to give subspecific status to the isolated intermediate specimens. The name *I. m. pallidus* could perhaps be used to cover all the intergrades but the Nigerian birds are closer to *conirostris* than most of the others. I prefer to leave the rest under intermediate designations according to their proximity, both in appearance and locality, to other races

Other specimens examined from Angola are from Catumbela and Malanje, both of which are readily identified as *I. m. minor*. The one obtained at Leba in mixed scrub by the stream is, however, slightly paler and seems to match best with *I. m. damarensis* of South West Africa. It seems possible that *damarensis* is therefore associated exclusively with thorn country.

59. *Campethera cailliautii fulleborni* ≷ *permista*

Specimens

1 ♂ Luau R. 31st July. 1 ♀ near Vila Luso, 7th Aug.

Systematic Notes

Chapin (Ibis 1952 : 535) discusses intermediates between the barred Green-backed Woodpecker, *Campethera permista* (Reichenow), and the Little Spotted Woodpecker, *Campethera cailliautii* (Malherbe), found at Baraka on Lake Tanganyika, also at a locality 340 miles west of Baraka, and at Katombe (6° 29′ S.: 23° 58′ E.). The Angola specimens are yet other intermediates though closer to the Little Spotted Woodpecker, represented in north-western Rhodesia by the race *C. c. fulleborni* (Neumann). On the mantle the round spots of typical *fulleborni* are replaced by small elongated spots : on the underparts the round black spots of the breast are replaced by kidney-shaped spots almost stretching to each edge of the feather, each one being twice as broad as it is deep. The kidney-shaped spots are more elongated in the male than the female. The general effect is of a bird more heavily marked below and more lightly marked above than *fulleborni* ; less heavily marked below and more heavily marked above than *permista*. The occurrence in eastern

Angola of intergrades and ones closer to *C. c. fulleborni* seems logical since *C. p. permista* is found in northern Angola at Vila Salazar and *C. c. fulleborni* rather nearer, in the Balovale area of northern Rhodesia.

60. ***Campethera nivosa herberti*** (Alexander) 1908 : Bwande, Ubangi R. Belgian Congo.

Specimen

1 ♂ 12 m. S. of Gabela, 18th Sept.

Systematic Notes

Meise (1958 : 70) has described a new race of the Buff-spotted Woodpecker, *C. n. canzelae*, from Canzele, about 200 miles north of Gabela. This male from Gabela is a very close match with the type of *C. n. herberti* ; it is the only Angola specimen of the species in the British Museum, but Mr. Traylor (in litt.) tells me that he, on specimens in Chicago, considers more northern birds to be *herberti* also, and that *canzelae* therefore should be regarded as a synonym of *herberti*.

61. (a) ***Dendropicos fuscescens hartlaubii*** Malherbe 1849 : Zanzibar.

(b) ***Dendropicos fuscescens hartlaubii*** ≷ ***stresemanni*** Grote 1922 : Okaukweyo, SW. Africa.

Specimens

(*a*) 1 ♂ Luau R., 30th July : 1 ♀ 20 m. SE. of Luacano, 6th Aug. : 1 ♀ 15 m. N. of Vila Flor, 25th Aug.: 1 ♂ 5 m. S. of Caconda, 28th Aug. (*b*) 1 ♂ 1 ♀ Quipungo, 28–29th Aug.

Field Notes

All the specimens of (*a*) were collected in Brachystegia and the pair of (*b*) in thorn country.

Systematic Notes

The use of the name *hartlaubii* for widespread populations of the Cardinal Woodpecker was discussed (Hall, 1956 : 101) ; these specimens together with others in the British Museum help to complete the picture in Angola. They show that birds from the Vila Salazar area in the north of Angola are consistently washed with yellow on the mantle, matching a series from Tanganyika ; those from the centre of the country are variable, the Luau R. male and a Caconda male of an older collection being washed with yellow although ours from Caconda is not ; those from the thorn country in the south show a very marked approach to the lightly streaked *stresemanni* of South West Africa this being particularly true of the Quipungo male although the female is more heavily streaked.

62. ***Mesopicos griseocephalus persimilis*** Neumann 1933 : Chipepe, Cuanza Sul.

Specimens

1 ♂, 2 imm. Mt. Moco 7,000 feet, 20–21st Aug.: 1 imm. Leba, 3rd Sept. Wings 101–106.

Field Notes

The Olive Woodpeckers on Moco were shot in or near the forest, one of the young being in a party of three. The Leba bird was one of a party of four associated with a mixed bird party of greenbuls and *Lanioturdus torquatus*, moving among the stunted woodland on the hillside above the gorge of the river.

Systematic Notes

These are the first Angola specimens in the British Museum, and on them the race *persimilis* has been accepted tentatively as distinct from *ruwenzori* Sharpe, since they are all short winged in comparison with *ruwenzori*. There are no colour differences apparent between the single adult *persimilis* and eastern birds but it is a specimen which was preserved temporarily in salt and therefore not very satisfactory for comparison.

64. (a) ***Mirafra africana kabalii White,*** *Bull. B.O.C.* 64, p. 20, 1943 : Minyanya Plain, Balovale.

(b) ***Mirafra africana occidentalis*** (Hartlaub) 1857 : Gaboon.

(c) ***Mirafra africana occidentalis ≳ pallida*** Sharpe.

Specimens

(*a*) 2 ♂ 2 ♀ Luacano area, 31st July–1st Aug.: (*b*) 1 ♂ 1 ♀ Quipungo, 29th Aug.: 1 ♂ 1 imm. ♂, 60–80 m. N. of Lobito, 14th Sept.: (*c*) 1 ♂ Leba, 4th Sept.

Field Notes

The late Captain Grant always expressed some doubts as to whether the form *kabalii* was really a race of the Rufous-naped Lark and it was hoped to obtain some field evidence on this point for him. Unfortunately, at Luacano these larks were apparently rare and were not observed long enough for conclusions to be reached ; they were not heard calling. In the areas of western Angola where specimens of the western race were collected they were common and prominent, sitting on convenient perches, sometimes uttering typical "*africana*" whistles, and going to ground and running when disturbed. The apparent difference in behaviour between the two races might be partly attributable to different breeding seasons, some western birds being in worn plumage with enlarged gonads, but must also be partly due to the absence of suitable perches on the Luacano plains. It seems likely that *kabalii* must have adapted itself to a more terrestrial mode of life than other forms and it

would be interesting to observe its behaviour in the breeding season and see how it is modified to the rather different conditions.

Systematic Notes

The contrast in appearance between the specimens of the west and east of Angola is certainly striking. Those of the west have the long bill, rufous nape patch and typical lark mantle and head. The bills of the eastern birds are variable, but mostly short, they are almost blue-grey on the mantle with the dark centres to the feathers wider, to give a more scalloped effect : the rufous nape patch for the same reason is inconspicuous in three out of the four.

Western birds from north of Lobito south into South West Africa show a cline from greyer birds in the north (*occidentalis*) to paler and more rufous birds in the south (*pallida*) ; the Leba specimen is intermediate, as one from the Kaokoveld was also found to be by Macdonald and Hall (1957 : 18) ; it seems that both represent steps in the cline.

The eastern birds from Luacano match well with a topotype of *kabalii*. White (1956 : 122) refers to *kabalii* two specimens collected by Lynes from Missao de Luz (140 m. west of Luacano) and from about 190 m. further north in the Lunda district. They are both redder than typical *kabalii* and seem to me to be intermediate between this race and *malbranti* Chapin, of the French Congo, as represented by another Lynes' bird from Petianga, Kasai district ; *malbranti* in turn has close affinities with *stresemanni* Bannerman, of the Cameroon highlands and *kurrae* Lynes, of Darfur. These links between *kabalii* and northern races of *M. africana* seem to provide convincing evidence that it should be considered conspecific with them, all forming a rather distinctive group in pattern and size within the species as a whole.

65. (a) ***Mirafra angolensis angolensis*** Bocage 1880 : Caconda, Huila dist.
(b) ***Mirafra angolensis antonii*** Hall 1958 : 5 m. east of Luacano, Moxico.

Specimens

(*a*) 3 ♂ 1 ♀ Vouga, 11th Aug.: 1 ♀ 50 m. E. of Vila General Machado, 9th Aug.: 1 ♂ Mt. Moco 6,000 feet 16th Aug.: (*b*) 6 ♂ 3 ♀ Luacano area, 1–3rd Aug.

Field Notes

All were collected on open plains, usually near the wetter valleys or ditches rather than on the dry open spaces (see p. 394). They were in pairs or single. The flight was noted as being low and straight and birds put up flew some distance before settling again. One was seen to plane down from a height and perch on an anthill.

Systematic Notes

The systematics of the Angola lark were discussed when *M. a. antonii* was described.

74. ***Anthus vaalensis neumanni*** Meinertzhagen 1920 : Ambaca, Cuanza Norte.

Specimens

1 ♀ Lake Dilolo, 6th Aug.: 1 ♀ 43 m. W. of Texeira de Sousa, 31st July: 1 ♀ 14 m. W. of Munhango, 9th Aug.: 2 ♂ 1 ♀ Vouga, 10–11th Aug.: 1 ♀ Nova Lisboa, 13th Aug.: 1 ♂ Leba, 2nd Sept.: 2 ♀ Humpata-Jau road, 4th Sept. Wing 3 ♂ 92–100, 7 ♀ 92–102 : hind claw ♂♀ 9–12 mm. Bill colour, dark brown or blackish above, pale below with yellow gape.

Field Notes

All these pipits were found in fairly open ground, often in the vicinity of water or marsh. On the Vouga plains they were alongside *Mirafra angolensis* on the slopes above the marshy valleys, rather than with the Longclaws in the bottom of the valleys.

Systematic Notes

The identification of the Plain-backed Pipits of Angola was discussed in a recent paper (Hall, 1959) in which it was shown that it is not practical to recognize more than one race of *A. vaalensis* in Angola, although there is some geographical variation. Of these specimens all from Vouga and further east are rather greyer than those from the west, the differences not entirely due to the fact that the eastern birds are slightly stained from burnt ground.

75. ***Anthus leucophyrs bohndorffi*** Neumann 1906 : Kassongo, Belgian Congo.

Specimen

1 ♂ Mt. Moco 6,500 feet, 18th Aug. Wing 1 ♂ 102 : hind claw 12·5 mm. Bill colour, blackish above, bright yellow below with darker tip.

Field Notes

It is not possible on this single specimen to form any opinion on the ecological relationship between the two Plain-backed Pipits in Angola. This bird was collected in a grassy patch by a stream at the base of the mountain.

Systematic Notes

This is one of the three rather long-winged and short-clawed representatives of *A. l. bohndorffi* found in the mountains, which were discussed in the paper on identification. (Hall, 1959). The bright yellow of the bill was very noticeable in the fresh skin and may possibly be a character of breeding dress.

76. ***Anthus similis schoutedeni*** Chapin 1937 : Kwamouth, Belgian Congo.

Specimens

1 Mt. Moco 6,000 feet, 18th Aug.: 1 near Vila Flor, 25th Aug.: 1 ♂ Caconda, 28th Aug.

Field Notes

All were collected in Brachystegia woodland between 5,000 feet and 6,000 feet. It seems that in central Africa *Anthus similis* is more a bird of the woods than of the rocks, and both the common names applied to the species—Long-billed Pipit in Africa or Rock Pipit in Asia—are equally unsuited to this race, *schoutedeni* being comparatively short-billed (15–17 mm.).

77. ***Anthus lineiventris*** Sundevall 1850.

Specimen

1 ♂ Mt. Moco 7,000 feet, 21st Aug.

Field Notes

This bird was shot in a low tree on the edge of light woodland and the open rocky slopes. Chapin (1953 : 80) gives 5,000 feet as the altitudinal limit for the Striped Pipit.

78. ***Macronyx ameliae*** De Tarragon 1845.

Specimens

1 ♂ 2 ♀ 1 imm. ♀ Luacano area, 31st July–3rd Aug.: 1 ♂ Lake Dilolo, 4th Aug.: 2 ♂ Vouga, 10–11 Aug.

Notes on Moults

In the British Museum there are a number of specimens of Amelia's Longclaw collected by Lynes, Vincent and Benson which have good data on the condition of the gonads. From these, and from our birds, it is evident that in *M. ameliae* (and in *M. grimwoodi* as well) there is an irregular and incomplete moult before the breeding season. This moult, as with many pipits, may be of body plumage only or include some secondaries and/or the central rectrices. In the males new bright red feathers come in on the throat, replacing orange or buff feathers. From the one specimen examined in full post-breeding moult (Dedza, Nyasaland, 21st April) I am of the opinion that the bright red throat feathers are then replaced by orange-pink feathers, and that therefore some of the differences in the colour of the throat and abdomen are due to distinctive breeding and non-breeding plumages as well as to wear and individual variation, and differences in immature and adult plumages as discussed by White (1946 : 79).

79. ***Macronyx grimwoodi*** Benson 1955 : Chitunta Plain, Mwinilunga, N. Rhodesia.

Specimens

1 ♂ 36 m. W. of Texeira de Sousa, 31st July ; 3 ♂ 1 ♀ Vouga 10–11th Aug.

Field Notes

The first specimen was found on an open dambo near a river, and at Vouga others were found in the same marshy valleys as *M. amelia* and *M. fulleborni* Reichenow. The flight was noted as being slow with the white wing-patch conspicuous.

The discovery of Grimwood's Longclaw as far west as Vouga is a notable extension to its known range.

Systematic Notes

The colour of the throat in all specimens is richer than in one of the original type series which was described as " very pale." In all the Vouga birds new feathers are coming in on the throat and, in the two specimens in which this moult is most fully advanced, the general colour is rich salmon. These specimens also have a distinct pink flush on the abdomen and shoulders ; one is in body moult (see notes on moults of *M. amelia*).

From one of the Vouga birds specimens of feather lice were obtained which were identified by Dr. T. Clay as of the genus *Ricinus*.

84. ***Malacocincla fulvescens dilutior*** White, *Bull. B.O.C.* 73, p. 96, 1953 : Ndala Tando, Cuanza Sul.

Specimens

3 ♂ 12 m. S. of Gabela, 17–19th Sept. Wing 71–73.

Systematic Notes

When *dilutior* was described it was compared only with the nominate race. In appearance it seems closer to *ugandae* (van Someren), but has the throat paler, with distinct streaks and the chest bright buff rather than grey buff. It is also smaller, the wings of six males being 71–76 against 76–80 mm. for seven males of *ugandae*. The Gabela specimens are smaller than those from Vila Salazar (74–76).

89. ***Chlorocincla f. falkensteini*** (Reichenow) 1874.

Specimens

1 ♂ Chingoroi, 9th Sept. 1 ♀ 1 imm. ♀ 12 m. S. of Gabela, 17th Sept.

Systematic Notes

The young bird was identified as immature by the skull not being fully ossified, by having soft edges to the gape which was yellow, and by having a light brown, not " crimson " or " deep brick red " iris, but the plumage is similar to the adults. The stomach contained large berries which were possibly coffee.

93. ***Phyllastrephus fulviventris*** Cabanis 1876.

Specimens

1 ♂ 1 ♀ 1 Chingoroi, 8–10th Sept.: 1 ♂ 1 ♀ Gabela, 18–19th Sept.

Field Notes

Very little is yet known of this greenbul. These specimens were collected or netted in forest. One was in a party of three seen hopping about in the leaves and low undergrowth. Two were found to have been eating insects ; this seems to be the usual diet of *Phyllastrephus*, as noted by Chapin for the species *P. fischeri* (Reichenow), *P. xavieri* (Oustalet), *P. icterinus* (Bonaparte), *P. albigularis* (Junge) and *P. flavostriatus* (Sharpe).

96. ***Alseonax c. cinereus*** (Cassin) 1857.

Specimen

1 imm. ♀ 40 m. S. of Mumbondo, 20th Sept. Wing 69 mm.

Systematic Notes

This young flycatcher still has some juvenile plumage on the head and wing-coverts but gives the appearance of being fully grown. By its colour as well as by its small size it can confidently be referred to this race and not to the larger and paler *A. c. cinereolus* (Finsch & Hartlaub), which occurs in southern Angola.

105. ***Hyliota australis ? slatini*** Sassi 1914 : Beni, eastern Belgian Congo.

Specimens

1 ♂ 5 m. W. of Munhango, 9th Aug.: 2 ♂ 1 ♀ 28 m. W. of Vila Luso, 8th Aug.

Systematic Notes

White (1957 : 35) discusses variation in this flycatcher, with particular reference to the amount of white in the tail. There is very little available material of any races and the tail pattern of the male is the chief character on which races have been separated. From material in the British Museum, and information given to me by Miss Patterson on the birds in Bulawayo it seems that *H. a. australis* Shelley, with some white on both the inner and outer webs of the outer rectrices, is confined to Southern Rhodesia : *H. a. inornata* Vincent, from Portuguese East Africa and southern Nyasaland, is probably separable on having rather more white on the inner webs : birds from Northern Rhodesia are variable, often lacking any white, and the population there is apparently intermediate between *australis* and the wholly black-tailed *slatini* of the eastern Belgian Congo. Males from the southern Belgian Congo and the series from eastern Angola also are wholly black-tailed. The Amani

race *usambara* Sclater, has a little white on the outer web but is chiefly distinguished by the richer colouring of the throat and breast.

Two eastern Congo birds were borrowed from Tervuren to compare with the Angola series. They were found to have rather a more purplish sheen on the upper parts, the Angola birds being a very sooty black, and to be more washed with orange on the breast. These differences could well be due to wear, the Angola series being in worn plumage and stained with burnt grass ; all are therefore referred for the present to *slatini*.

108. ***Batis pririt*** (Vieillot) 1818 : Lower Orange River.

Specimens

1 ♂ 18 m. W. of Cahinde, 5th Sept.: 1 ♂ 2 ♀ 12–30 m. SE. of Benguela, 11–12th Sept.

Systematic Notes

Pririt Flycatchers from Angola average smaller than those from the rest of the range ; but in the absence of any other distinguishing characters the difference does not seem great enough to warrant them being separated as a new race.

Comparative Wing Measurements

Angola	8♂	53–55		8♀	52–55
Damaraland	5♂	55–60		7♀	54–59
Namaqualand	8♂	57–59		5♀	56–57
Cape Prov.	3♂	56–58		3♀	56–57
Bechuanaland	6♂	55–58		8♀	54–58
O.F.S.	—	—		1♀	55

109. ***Batis m. margaritae*** Boulton 1934 : Mt. Moco, Benguela.

Specimens

2 ♂ 1 ♀ Mt. Moco 7,000–7,500 feet, 17–21st Aug.

Systematic Notes

Some doubt has been expressed as to whether *B. kathleenae* White, of Mwinilunga, is distinguishable from *margaritae*. Comparison of these Moco birds with *kathleenae* show that they differ in both sexes in being darker, more blue-grey on the back, and the blue-black of the eye-stripe and ear-coverts continues on to the hind neck to form an almost complete V. In addition the female *kathleenae* has the chestnut wing-coverts less rich and has a white line from the lores to the eye which is absent in the female *margaritae*.

In a genus such as *Batis* where the colour and pattern of the female is the most striking difference between species, I am not convinced that two forms such as *margaritae* and *kathleenae* with almost wholly black-and-white females should be

united, as has been done, with *Batis capensis* (Linnaeus), in which the female has chestnut underparts and a browner grey back than the male. I prefer to consider *B. margaritae*, *B. capensis* and *B. diops* of Ruwenzori as forming a superspecies.

112. ***Dyaphorophyia concreta ansorgei*** Hartert 1905. Cabeça de Ladroes, Benguela.

Specimens

3 ♂ 3 ♀ 1 juv. ♂ Chingoroi, 8–11th Sept.: 1 ♂ 1 ♀ 12 m. S. of Gabela, 12th Sept.: (1 ♀ in spirit).

Field Notes

The Yellow-bellied Wattle-eye was most commonly netted in thick undergrowth of the forests. On one occasion two pairs and a party of three were seen within fifty yards, on another occasion one was seen with a party of *Chlorocichla flaviventris*. Several calls were noted, a sweet whistle " pih, pih, puh, puh, puh, puhh," preceded by a call not unlike an alarmed Yellow-vented Bulbul ; also a whistle " phee, phee, pheeat." The wings make a loud snap in flight.

Systematic Notes

The Chingoroi series are nearly topotypical : in view of the rapidity with which the colours fade it seems advisable to give a detailed description of the plumages of both sexes and the young bird. All the adults are finishing moult and show that both sexes have olive green backs when fresh, which wear to grey, with no metallic wash except on the tail. Below the males are a brilliant orange-yellow, the females very slightly paler on the abdomen with a rich chestnut throat and chest. The young male is mostly out of the nestling plumage which was described by Meise (1958 : 76). It is rather paler olive green on the back than the adults, has a pale yellow abdomen and a faint wash of orange on the chest and throat ; the wing-coverts and secondaries are tipped with buff ; the tail is grey with only a faint metallic tinge. The iris of the adults was noted as being dark brown with a silver thread round the pupil ; this thread was lacking in the young bird which had a greyish brown iris.

Meise (loc. cit.) has described a new race from Canzele in which females are greyer than in *ansorgei*. The Gabela specimens show no approach to this.

114. ***Tchitrea viridis plumbeiceps*** (Reichenow) 1898 : Malanje.

Specimens

1 ♂ 1 ♀ Vouga, 12th Aug.: 1 ♂ 1 ♀ Mt. Moco 7,000 feet, 20–21st Aug.

Field Notes

The pair at Vouga were among the few birds seen in Eucalyptus plantations along the railway. The pair from Mt. Moco were netted in thick montane forest but

others were common in the Brachystegia of the foothills, and on one occasion were seen mobbing a Yellow-throated Sparrow.

Systematic Notes

See following species.

115. ***Tchitrea melampyra* bannermani*** (Chapin) 1948 : Ngara, Cuanza Sul.

Specimen

1 ♀ 12 m. S. of Gabela, 16th Sept.

Field Notes

This specimen was collected in the forest.

Systematic Notes

It is not proposed here to go into the vexed question of the taxonomy of the Paradise Flycatchers but in order to discuss the situation that prevails in Angola it is necessary to define the main groups under discussion. For this it is most convenient to follow Mackworth-Praed and Grant (1955 : 223) in considering the group comprised of the forms *plumbeiceps* of Angola and *violacea* Grant & Praed as separate from other forms of *T. viridis*. In these two forms the wings and mantle are cinnamon in colour with no white, the head is light grey with a long crest, the underparts are grey with a considerable amount of white on the abdomen and the under tail-coverts white or washed with rufous ; males have a long tail. The other group with which we are concerned is the generally recognized species *T. melampyra* (= *T. rufocinerea* of Chapin and other authors—see Grant & Mackworth-Praed 1957), comprising the races *batesi* (Chapin) of the Camaroons, *melampyra* Verreaux of the Lower Congo and extreme northern Angola (Quela and Canzele—Traylor *in litt.*) and *bannermani* of north western Angola, south of *melampyra*. *T. m. melampyra* has the wings and mantle a bright orange rufous, the head a deep metallic blue with a short crest, the underparts dark grey with no white on the abdomen, and has deep rufous under tail-coverts and a short tail.

Chapin in his paper on hybridization among the Paradise Flycatchers (1948 : 118) discusses the hybrid population *bannermani*, derived from inter-breeding between the *melampyra* and the *plumbeiceps* groups. He shows *bannermani* to be closer to *melampyra* but showing an approach to the *plumbeiceps* group in having a paler head, longer crest and paler underparts. He indicates that *bannermani* has become sufficiently stabilized to live alongside *plumbeiceps* though ecologically segregated, *bannermani* being found in more wooded or forested habitat while *plumbeiceps* keeps to more open country. All localities from which *bannermani* has been collected lie in the centre of the Escarpment Zone and our single specimen was collected within the escarpment forest. We did not find *plumbeiceps* ourselves in this area

* Since this was written the specimen in the British Museum alleged to be the type of *melampyra* has been re-examined at the request of Dr. J. P. Chapin, and found not to be the type. It is probable that the name *melampyra* will prove indeterminate : meanwhile it is preferable to use *rufocinerea* for this species.

but Ansorge collected both forms at Ndala Tando, though there are unfortunately no data on his specimens as to the type of country in which they were obtained. Chapin does not cite actual evidence of the two forms breeding alongside, and, in fact, the majority of *plumbeiceps* from north-western Angola have been collected in the non-breeding season, June to August, when it is known to wander widely. There is, however, a female *plumbeiceps* from Dondo collected by Ansorge in November to support his view and its known breeding range come, very close to the Escarpment Zone at Malanje and Moco. This seems to present an unusual case of two species hybridizing, possibly through some temporary breakdown of ecological barriers, and then at a later date the hybrid population being again divided into two populations, which we now recognize as *bannermani* and *plumbeiceps*, each of which is strongly associated both morphologically and ecologically with one of the parent species although showing some influence of the other parent.

This factor has been recognized in the discussions on *bannermani* which is accepted as a race of *melampyra* showing an approach to *plumbeiceps*, but it does not seem to have been appreciated that it is also important in considering the status of the Angola population of the *plumbeiceps/violacea* group. A study of all specimens of this group shows that there is great variability in the extent of white on the abdomen and in the amount of rufous in the under tail-coverts but that specimens showing little white and a lot of rufous are most common in Angola and the Belgian Congo and less common eastwards into Nyasaland and southwards into South West Africa. This it seems can be directly attributed to the diminishing of the *melampyra* influence away from the zone of one-time hybridization. Since *plumbeiceps* was described from Malanje I believe it should be recognized as a variable race in which the white of the abdomen is usually rather restricted and the under tail-coverts usually rufous, and that it merges imperceptibly into *violacea* of Nyasaland which has usually more white on the abdomen and in which white under tail-coverts predominate. It seems doubtful if *T. viridis subrufa* (Salomonsen 1949) from the south east Belgian Congo, which was described as having dark cinnamon under tail-coverts distinct from some Malanje specimens in which they were white or yellowish, will be found to differ from a larger Angola series which shows all variations.

It is an interesting point that *plumbeiceps* away from the range of *bannermani* is not apparently confined to more open country since a pair were collected in the Moco forest. Of these the female is unusual in having elongated central rectrices like the male.

118. ***Turdus pelios bocagei*** (Cabanis) 1882 : Angola.

Specimen

1 ♂ Mt. Moco 7,000 feet, 23rd Aug. Wing 132 mm.

Systematic Notes

I have followed Mackworth-Praed and Grant (1955 : 241) in considering *T. pelios* a distinct species from the Olive Thrush, *T. olivaceus*, but believe they are wrong

in applying the name *schuetti* (Cabanis) to this species. Professor Stresemann has examined the types of both *bocagei* and *schuetti* and emphasizes that *schuetti* belongs to the woodland species *T. libonyanus* : it should therefore be placed in the synonymy of *T. l. verreauxi* and *T. p. bocagei* be used for the forest bird.

The wing length of *bocagei* is very variable. The difference between the Moco bird and a series from N. Angola in the British Museum was found to be so great that I asked Mr. Traylor for details of specimens in Chicago. From the combined series it is apparent that birds from the high country inland, Moco and Quela, are conspicuously larger than those of the escarpment forests : when the species as a whole is reviewed it may be found necessary to recognize two races in western Angola.

TABLE.—*Wing Lengths of Specimens of Turdus pelios bocagei*

Locality (south to north)	♂	♀	Unsexed
Moco	117, 127, 130, 132	119, 121, 123, 123	—
Gabela	110	111, 119	118
Dondo	119	111	—
Ndalo Tando	116, 117, 117, 117	107, 111	—
Golungo Alto	116	—	—
Canzele	114	109	—
Quela	129	—	—

119. ***Geokichla litsipsirupa stierlingi*** Reichenow 1900 : Iringa, Tanganyika.

Specimen

1 ♀ 5 m. W. of Munhango, 8th Aug.

Systematic Notes

Although the Angola Groundscraper Thrushes have been separated as *G. l. kosteri* (Neumann), on slight differences of size and pattern, I can see no reason to distinguish this specimen from *G. l. stierlingi*.

127. ***Myrmecocichla tholloni*** (Oustalet) 1886.

Specimens

2 ♂ 1 ♀ 30 m. W. of Vouga, 12th Aug.

Field Notes

Thollon's Chat was first seen by the road 50 miles east of Vila General Machado and again on the plains near Vouga, but it proved very wary and difficult to approach. The three birds were finally collected near together, two having been watched for some while. It was found that they made use of the few small trees on the open plains, returning again and again to two or three selected perches after forays on the ground for food. The stomach contents showed this to be largely beetles and grasshoppers but fragments of a small lizard were also noted.

The alarm note was a shrill peep " almost identical with the Kenya Anteating Chat." When the first male was shot the female returned and fluttered about in the vicinity. Earlier on a wounded bird was lost and almost certainly had gone to ground in an antbear hole.

It was noticed that, in life, this chat looks darker than in the hand, appearing to be almost black with contrasting white markings.

130. ***Xenocopsychus ansorgei*** Hartert 1907.

Specimens

1 ♂ 1 ? ♀ 1 Leba, 1st Sept.: 1 ♂ 3 m. SW. of Sá da Bandeira, 6th Sept.

Field Notes

Braun (1956 : 41) has written a full account of his observations on *Xenocopsychus* in the Sá da Bandeira area. We found it, as he did, among the rocks and trees on top of the escarpment (see Plate 5, A) and in the gorge of the stream. We did not find it as shy of sunlight as he led us to expect, the first two being collected in the morning of a sunny day. Two pairs at least lived close to each other on the edge of the escarpment, and a pair when pursued at dusk took at least temporary refuge in the tangled thickets behind. Both the song and the alarm note were heard : the double-syllabled alarm whistle by one bird was frequently answered by a single whistle from the other. They moved and behaved much as a *Cossypha*, and in dimensions and pattern as well have much in common with *Cossypha heuglini*.

The stomach contents were found to contain fragments of both larvae and adult ground-living beetles, Tenebrionidae, Staphylinidae, and a weevil, *Blosyrus*, also fragments of ants.

Systematic Notes

The ♂ from Sá da Bandeira and the unsexed specimen from Leba are notably larger than the other two. Wing 104–106 ; bill 23, 23 ; tail 105, 111 ; against wing 96, 96 ; bill 21, 22 ; tail 99, 93 for the specimens from Leba sexed as male and female. Furthermore, there is some difference in tail pattern between the two larger birds and the two smaller ; in the larger the black on the outer edge of the outermost rectrices extends about 56 mm. from the tip ; in the smaller pair it extends 37–40 mm. from the tip. It seems probable that an error was made in sexing the " male " from Leba and that this difference in size and tail pattern between the two pairs may be due to sexual variation.

132. ***Cossypha polioptera ? polioptera*** Reichenow 1892 : Lake Victoria.

Specimens

1 ♂ 2 ♀ Luacano, 2nd Aug.

Systematic Notes

C. p. grimwoodi White, was described from the Mwinilunga district as having a clearer grey head top, and the back and rump less tawny, more olive brown than *polioptera*. With seasonal variation and a certain amount of foxing in old skins it is difficult to place these. They have the head and mantle darker than *grimwoodi*, and the mantle, except in one female which was salted, more olive than available specimens of *polioptera* which may possibly be slightly foxed.

I therefore refer these tentatively to *polioptera* which extends across the continent to northern Angola : possibly the division between the two races may be found to lie along the Congo/Zambesi watershed.

133. (a) ***Cossypha natalensis intensa*** Mearns 1932.

(b) ***Cossypha natalensis larischi*** Meise 1958, p. 73 : Canzele, Cuanza Norte.

Specimens

(*a*) 1 ♂ 1 ♀ Luau R., 29th July : 1 imm. ♀ Luacano, 2nd Aug. (*b*) 1 ♂ 2 ♀ 1 imm. ♀ 12 m. S. of Gabela, 17–18th Sept.

Systematic Notes

The distinctiveness of the north Angola population and variation within *C. n. intensa* have been discussed (Hall 1958 : 154).

138. (a) ***Erythropygia leucophrys munda*** (Cabanis) 1880 : Malanje.

(b) ***Erythropygia leucophrys ovamboensis*** Neumann 1920 : Ombongo, Ovamboland.

Specimens

(*a*) 1 ♀ Quipungo, 29th Aug. (*b*) 1 ♀ E. of Cahinde, 6th Sept.: 1 ♀ 60 m. N. of Lobito on Novo Redondo road, 13th Sept.

Systematic Notes

It would seem that *munda* and *ovamboensis* are ecological races, *munda* being found in the woodlands and *ovamboensis* in the thorn country. Both the Quipungo and Cahinde birds were taken in areas where the two types of country meet, the first in a bush between a pocket of woodland and a pocket of thorn scrub, the second near the foot of the escarpment where stunted Brachystegia and mopane gives way to the semi-desert. This latter specimen has also some intermediate characters being more heavily streaked than is usual for *ovamboensis*, but is considerably paler above and less washed with rufous below than *munda*.

139. ***Erythropygia leucosticta reichenowi*** Hartert 1907 : Canhoca, Cuanza Sul.

Specimen

1 imm. ♀ Chingoroi, 9th Sept.

Field Notes

This elusive scrub robin was never seen, the single specimen being collected in a net set in slender, very close-growing trees with very little undergrowth, near the stream in the forest.

Systematic Notes

This is the most southern record for the species and I believe the first known female of this form. It was compared with two males from northern Angola borrowed from Chicago and was found to be a good match, only a trifle paler on the mantle. It still has some young feathers with rufous edges in the secondaries and wing-coverts.

141. ***Acrocephalus baeticatus cinnamomeus*** Reichenow 1908.

Specimen

1 ♀ Chingoroi, 8th Sept.

Systematic Notes

The three races of Reed Warbler, *baeticatus* (Vieillot), *cinnamomeus* and *suahelicus* Grote, are, at best, only distinguishable in series. This specimen, in moult, is unsatisfactory for comparison but has been identified as *cinnamomeus* by Mr. C. M. N. White, who is preparing a revision of the species.

143. ***Bradypterus mariae boultoni*** Chapin, *Ann. Carn. Mus.* 31, p. 1, 1948: Mombolo, Cuanza Sul.

Specimens

1 ♂ 2 ♀ Mt. Moco 7,000 feet, 16–23rd Aug.

Field Notes

This Forest Warbler was quite plentiful in the pockets of forest, as its voice, a loud " chep, chep " frequently repeated, was heard throughout the day, even when other birds were silent. It was not often seen, and always in thick undergrowth and very near the ground. The stomach contained crickets and other insects.

142. ***Seicercus laurae laurae*** Boulton 1931: Mt. Moco.

Specimens

2 ♂ 2 ♀ 1 Mt. Moco 7,000 feet, 19–22nd Aug. (1 in spirit.)

Field Notes

Two of these were a pair found in thickish forest, the female carrying nesting material of feathers. Another was one of a party of three or four feeding in foliage about ten feet from the ground. The food was found to be larvae and insect fragments.

145. (a) ***Calamocichla gracilirostris winterbottomi*** White 1947 : Manyinga R., Macondo dist., Moxico.

(b) ***Calamocichla gracilirostris cunenensis*** Hartert 1903 : Cunene R., S. Angola.

Specimens

(*a*) 2 ♂ 2 ♀ Lake Dilolo, 3–5th Aug. Wings ♂ 72, 74, ♀ 68, 69. (*b*) 1 ♀ Leba, 30th Aug. Wing 69 mm.

Systematic Notes

I have followed Chapin (1953 : 441) in assigning both these forms of Swamp Warbler to *C. gracilirostris* (Hartlaub). The birds from Lake Dilolo answer the description of *winterbottomi* but are a little larger, the type series having wings of 67–71 mm. The Leba specimen is not strikingly different but is a little paler on the back and is more washed with buff on the flanks and thighs.

147. ***Calamonastes simplex huilae*** Meise 1958, p. 72 : Huila.

Specimens

1 ♀ Mt. Moco 6,000 feet, 24th Aug.: 1 ♀ Vila Flor, 26th Aug. Wings 63, 64 : bill 14 ; tail 46, 48 mm.

Systematic Notes

These Wren-warblers answer the description of Meise's new race, and the characters of these and some specimens from Vila da Ponte, collected by the Visser-Transvaal Museum, had already been observed by Dr. Rudebeck and myself before the publication of Meise's paper.

149. ***Apalis rufogularis brauni*** Stresemann 1934 : Roça Congulu, Cuanza Sul.

Specimens

1 ♂ 2 juv. ♀ 12 m. S. of Gabela, 16–18th Sept.

Field Notes

The adult was collected in the very top of a tall tree by the river ; the others were in the escarpment forest, one being a member of a family party of four in thickish trees about ten feet from the ground.

152. ***Sylvietta r. ruficapilla*** Bocage 1877 : Caconda, Huila.

Specimens

1 ♀ Lake Dilolo, 5th Aug.: 1 ♂ 15 m. N. of Vila Flor, 25th Aug.: 1 ♀ Caconda, 28th Aug.

Systematic Notes

All three specimens vary in the extent of rufous on the neck. The female from Caconda has none and has the thighs also grey ; the male from Vila Flor and a pair from Caconda in the British Museum have a narrow half circle of pale rufous on the neck and pale rufous thighs. The female from Lake Dilolo has a dark rufous patch on the neck and dark rufous thighs. It also has the white of the lores very much reduced, but in all other respects matches in colouring with the topotypical birds. On the limited material available it is not possible to judge the significance of this variation.

154. (a) ***Sylvietta rufescens ansorgei*** Hartert 1907 : Huxe, Benguela.

(b) ***Sylvietta rufescens mossamedes*** Meise 1958, p. 71 : 25 m. S. of Jau, Moçamedes.

Specimens

(*a*) 1 ♂ 1 ♀ 12–15 m. SE. of Benguela, 11–12th Sept. (*b*) 1 Leba, 31st Aug.

Systematic Notes

The possiblity of *Sylvietta rufescens* and *S. ansorgei* being conspecific was suggested by Macdonald & Hall (1957 : 28) when a specimen from Ohopoho, Kaokoveld, was discussed. This specimen showed some intermediate characters, as does the unsexed specimen from Leba. Further similar specimens were examined by Meise who has given them the name *mossamedes*. The Ohopoho bird is in the Transvaal Museum and has not been compared with the Leba bird, but it seems certain that it will also be found to be this race.

155. (a) ***Eremomela icteropygialis puellula*** Grote 1929 : Catumbela, Benguela.

(b) ***Eremomela icteropygialis polioxantha*** Sharpe 1883 : Swaziland.

Specimens

(*a*) 1 ♀ Cahinde, 5th Sept.: 1 ♂ 12 m. SE. of Benguela, 12th Sept. (*b*) 1 100 m. W. of Vila Luso, 8th Aug.: 1 Vouga, 10 or 11th Aug. Wing (*a*) ♂ 50, (*b*) ♀ 53 mm.

Systematic Notes

The series of *puellula* in the British Museum shows that birds from south Angola are rather darker as well as smaller than South West African specimens (wings of 7 ♂ 49–55 ; 6 ♀ 48–53 against 4 ♂ 54–57 ; 9 ♀ 52–57 mm.).

The two specimens of *polioxantha* were unfortunately badly shot and preserved in spirit ; they have since been skinned but are not very satisfactory for comparison. This is unfortunate as they are important specimens showing that grey-backed birds are found well within the range of the green-backed *E. salvadorii* (see species 158) supposed by some authors to be conspecific. There is, however, no question

that any green on the mantle might have been lost in the spirit since these were grey when collected, the only green-backed *Eremomela* being obtained later at Vila Flor and recognized then as something new to our collection.

The races *puellula* and *polioxantha* provide examples of strongly differentiated races specialized in thorn and Brachystegia country.

157. ***Eremomela atricollis*** Bocage 1894.

Specimens

2 ♂ 5 m. W. of Vila General Machado, 10th Aug.: 1 ♂ 1 ♀ 15 m. N. of Vila Flor, 25–26th Aug.: 1 ♀ 5 m. S. of Caconda, 28th Aug.

Field Notes

The Black-necked Eremomela was found in fairly tall and in stunted Brachystegia. It was noted to be very active, fossicking for insects with tit-like agility, often upside down. It was once found with a small party of *E. scotops*.

158. ***Eremomela salvadorii*** Reichenow 1891 : Leopoldsville, Belgian Congo.

Specimen

1 ♀ 5 m. N. of Vila Flor, 26th Aug.

Systematic Notes

Specimens of the green-backed species in the British Museum have been obtained at Nova Lisboa, Vila Luso, both by Admiral Lynes, and now at Vila Flor. They establish it as sympatric with *E. i. polioxantha* and as a bird of bushes on the edge of woodlands, thus requiring very similar but possibly more open habitat. There seems no significant difference in colour between the Angola birds and some from Luluabourg in the Kasai, and I follow the authors in considering *E. griseoflava lundae* Grant & Praed, a synonym of *E. salvadorii*.

159. (a) ***Camaroptera brevicaudata sharpei*** Zedlitz 1911 : Damaraland.
(b) ***Camaroptera brevicaudata*** subsp. (?)
(c) ***Camaroptera brevicaudata harterti*** Zedlitz 1911 : Canhoca, Cuanza Sul.

Specimens

(*a*) 1 ♂ Leba, 3rd Sept.: 1 ♂ 1 juv. Chingoroi, 8th Sept.: (*b*) 1 ♂ Luau R., 28th July (and one in spirit). (*c*) 1 ♀ Gabela 17th Sept.

Systematic Notes

The green-tailed form *harterti* with very white underparts is strikingly different from other races of *C. brevicaudata*, all of which have brown or grey-brown tails

and are heavily washed with grey or buff on the chest. Its range is apparently restricted to localities on and below the escarpment from Ndala Tando and Luanda to Gabela and the specimens were probably all collected, as ours was at Gabela, in the escarpment or riverine forests. It is the more surprising therefore that other forms have been collected in similar forests at Chingoroi and Canzele, ours from Chingoroi being netted alongside such a typical forest bird as the Wattle-eye, *Dyaphorophia concreta*. The Canzele specimens in the Chicago Museum are those referred by Heinrich (1958 : 349) to *C. b. harterti* and which proved on examination to be *C. b. tincta*.

It seems possible that *harterti* is the true ecological representative of *C. brevicaudata* in the escarpment forests, but that, on the northern and southern edges brown-tailed forms have intruded on its habitat, and it would not be surprising if *harterti* was eventually found as well at Canzele or Chingoroi.

Among the brown-tailed races it has been found, as with many Cisticolas, that there is little or no seasonal variation in some of the tropical forms, but well-marked variation in the sub-tropical forms. *C. b. sharpei* of southern Africa (of which *C. b. beirensis* Roberts, is considered a synonym) is an example of the latter, non-breeding birds having mouse-brown backs and the underparts washed with buff, breeding birds having grey backs and greyish white underparts. North of *sharpei* on the east of the country is *erlangeri* Reichenow, of eastern Tanganyika, with little seasonal change and characterized by very white underparts and a greyish-brown back. North again is *griseigula* with the underparts strongly washed with grey. On the west, north of *harterti*, is the dark grey *tincta* (Cassin), with no seasonal dress. This is found in Gaboon, Cameroons and northern Angola, extending into the northern Congo where it intergrades with East African races (see Chapin 1955 : 317).

However, in central Africa north of the recognizable limits of *sharpei*, west and south-west of *erlangeri* and *griseigula*, and south of *tincta*, there are specimens which represent an intermediate or several intermediate populations. These are similar above to *erlangeri* and *griseigula* in having grey-brown mantles, and below are closest to the breeding dress of *sharpei* but with slightly less grey on the throat and slightly washed with buff on the flanks. There seems to be little or no seasonal change.

Specimens examined which show these characters are as follows :

Angola : 1 ♀ Malanje, 24th Feb.; 1 ♀ Missao de Luz, Jan, coming into breeding condition ; 1 juv. ♂ Saurimo, Lunda dist. 20th Dec. (the two latter previously identified as *harterti*, Ibis, 1934 : p. 46). 1 ♂ Luau R., 28th July, not in breeding condition.

Belgian Congo : 1 ♂ Kayoyo (10° 30′ S. 24° 30′ E.), 1st Sept. coming into breeding condition. 1 Kambove, 1st July.

NW. Rhodesia : 1 ♂ Kabompo R., 9th Feb. 1 imm. ♂ Mwinilunga, 9th Jan.

Tanganyika : 1 ♂ Lukolansala R. Western Prov. 20th Nov.; 1 ♂ Mt. Hanang, 11th Feb.; 1 ♀ Usangu dist. 5th Nov.; 2 ♂ 2 ♀ 1 juv. ♂ Iringa uplands, 19th Jan. and 5th March, the March specimens post-breeding.

It will be seen that this is a very inadequate series from widely scattered localities and without proper seasonal representation in any one place, and it may well be

that adequate series will show that birds from these localities are not so homogenous as now appears. Until more material is available I do not feel that there is justification for giving them a name.

The adults collected at Chingoroi and Leba are typical of *sharpei* in non-breeding dress.

162. ***Cisticola chiniana*** near *frater*.

Specimen

1 (♂ on size) Leba, 31st Aug.

Systematic Notes

This specimen is rather darker than *frater* Reichenow, from Damaraland, as are three collected by Lynes in 1931 from the Que R. (14° 30′ S., 14° 30′ E.) which he labelled as " near *frater*."

181. ***Hirundo abyssinica unitatis*** Sclater & Praed 1918.

Specimen

1 Mt. Moco 7,000 feet, 17th Aug.

Field Notes

This Striped Swallow was observed to be apparently nesting in the cliff face over a waterfall in the mountain forest. This was unexpected as Chapin (1953 : 761) notes that in the Congo it is wanting on all the higher mountains, especially those that are forested.

190. ***Ptynoprogne fuligula*** near *rufigula*.

Specimen

1 Mt. Moco, 22nd Aug. Wing 121 mm.

Systematic Notes

Chapin (1953 : 744) suggests that Rock Martins from the central highlands of Angola are intermediate between *rufigula* (Fisher & Reichenow) of East Africa and the pale *anderssoni* (Sharpe & Wyatt), of South West Africa. This specimen is true *rufigula* in colour, but is larger, as is *anderssoni*.

192. ***Petrochelidon rufigula*** (Bocage) 1878.

Specimens

3 ♂ 6 ♀ 20 m. W. of Vila General Machado, 10th Aug. (and one in spirit) ; 1 ♂ 2 ♀ 1 Nova Lisboa, 12–13th Aug.

Field Notes

This cliff swallow was found breeding in a colony under a concrete road bridge. There were about two hundred and fifty nests massed together ; each was a large half sphere approximately 9 inches wide and 4 inches deep with an entrance spout varying greatly in construction but always very wide, about 2 inches across. The nest was lined with fine grass, no feathers. A clutch of two eggs was taken from one nest and a single egg from another. Several pairs of *Micropus caffer* were parasitizing some of the nests. In the Lower Congo *P. rufigula* was found breeding in April (Chapin 1953 : 773).

Systematic Notes

Chapin notes that *P. rufigula* is closely allied to *P. preussi* (Reichenow). Their affinities are further stressed by the eggs, which were examined by Dr. W. Serle, to whom I am indebted for the following notes.

Eggs : (Notes made by Dr. W. Serle, 31.xii.58).

" Eggs ovate, slightly glossy, smooth surface. Ground colour white tinged creamy pink. Spotted and blotched with reddish-brown and chestnut, brown primary and ashy violet secondary markings, both primary and secondary markings being densest about the large end and where they coalesce to form a ring or cup. One egg shows a few black hair lines. They measure 18·2 × 12·9 ; 19·5 × 13 ; 19·3 × 13·1 mm.

"In appearance they closely resemble one type of *Petrochelidon preussi* (Reichenow), from Nigeria, and on the criterion of the egg (size, shape, ground colour, markings, texture etc.) there is no reason why *Petrochelidon rufigula* and *P. preussi* should not be conspecific. On the other hand, these three *P. rufigula* eggs do *not* resemble *Petrochelidon spilodera* eggs from South Africa (of which I have seen many), nor do they resemble the eggs of *Petrochelidon fuliginosa* (Chapin) of the Cameroons.

"The eggs of *P. preussi* and *P. rufigula* are distinctive. I do not know any other African swallows' eggs that resemble them."

199. ***Prionops gabela*** Rand, Fieldiana 39, p. 43, 1957 : 15 km. S. of Gabela.

Specimens

1 imm. ♀ 12 m. S. of Gabela, 20th Sept.: 1 ♀ 40 m. S. of Mumbondo on Gabela-Muxima road, 20th Sept.

Field Notes

The first specimen of this new Helmet Shrike was obtained by Heinrich in " a little region of tangled tropical second growth along the ridge of a higher mountain range." From his subsequent paper (1958 : 128) it seems that he was camped a few miles further up the Cuvo River, nearer Assango, than we were. Our first specimen was obtained also on a ridge above the coffee forest where the trees were less thick. The second was found in the country below the escarpment in the trees

of a dry thicket by the road in an area of mixed thickets and cultivation. Both were members of small parties.

Systematic Notes

These are the first known females of this species. They answer the description of the male except that both have some white on the 2nd–6th primaries. This white is confined to very small patches on the inner web ; it is slightly more extensive in the adult, and in the young bird is asymmetrical. It is in no case comparable to the large patches in *P. retzii*.

Signs of immaturity in the Gabela specimen are found in a few brown feathers, very worn, among the fresh black feathers of the head, and in the colours of the iris, bill and legs as compared with the adult.

	Imm. ♀, Gabela	Ad. ♀, Mumbondo
Iris	Yellow	Yellow with red outer ring.
Bill	Red base, orange tip	Red, orange tip to lower mandible.
(In the dried skin the orange of the greater part of the lower mandible of the young bird is very noticeable.)		
Legs	Bright orange-red	Cherry-red.
Eye wattle	Red	Red.

204. ***Laniarius aethiopicus major*** (Hartlaub) 1865 : Elminia, Gold Coast.

Specimens

1 imm. ♂ Luau R., 31st July : 1 ♂ Lake Dilolo, 5th Aug.

Field and Systematic Notes

See next species.

206. ***Laniarius bicolor guttatus*** (Hartlaub) 1865 : Benguela.

Specimens

1 ♂ 2 ♀ 1 imm. ♂ Leba, 31st Aug.–1 Sept.: 1 juv. Chingoroi, 8th Sept.

Field Notes

The relationships and habitats of the Boubou Shrikes were discussed (Hall, 1954), and it was suggested that the different species were more restricted in their choice of habitat in the areas where two species were near neighbours. It was particularly interesting therefore to have my first experience of them in the field in Angola where *L. aethiopicus* and *L. bicolor* adjoin. Disappointingly little was seen of these shrikes in the critical central areas, the only specimen shot being one in the foothills of Mt. Moco which was never recovered from a thick reed-bed in the valley of a stream.

However, in the eastern districts *L. aethiopicus* was found to be an inhabitant of scrubby bushes in the Brachystegia woodlands, as it is in south-western Northern Rhodesia and the Caprivi Strip, where it occurs alongside *L. b. sticturus* Finsch & Hartlaub.

In the west *L. bicolor* was collected at Leba in thick cover by the stream or on the hillside just above, at Chingoroi in cover by the stream, and from a dry tangled thicket in the grass and thorn country above the sea near Novo Redondo. These different habitats in the extreme west conform to the suggestion that the habitats are less specialized away from competition with the related species.

Systematic Notes

The adults of the two species are readily distinguished by the relative whiteness of the underparts, and the observations made in the previous paper on the eye-colour of the two species, was borne out by our specimens ; the adult of *L. aethiopicus* being noted as having the iris " rich dark brown " and those of *L. bicolor* having it " dark brown."

The young birds are harder to distinguish since the pinky tinge on the breast of *aethiopicus* and the pure white of *bicolor* are replaced in the young by a buffy tinge in both species. But, as with the adults, when the feathers of the breast are lifted it will be seen that in *aethiopicus* they become more tinted with colour towards the base, which is black, whereas in *bicolor* they become whiter towards the black base.

Leba lies on the borders of two races, *L. b. guttatus* (smaller with two secondaries usually edged white) and *L. b. sticturus* (larger with three secondaries usually edged white). Two Leba birds have a narrow edge on the third secondary but in respect of size (wings 92–96) are clearly best referred to *guttatus*.

211. ***Tchagra s. senegala*** (Linnaeus) 1766 : Senegal.

Specimens

1 ♂ 1 ♀ Luau R., 27th July : 1 ♀ 40 m. W. of Texeira de Sousa, 31st July : 1 ♀ Mt. Moco 6,000 feet, 18th Aug.

Systematic Notes

Two of these Tchagras are just finishing moult, the other two just starting, so they illustrate well the extremes of seasonal variation. The two fresh birds were found to match well with some fresh specimens from West Africa. I therefore do not recognize *rufofusca* (Neumann), described from north Angola as distinct from the nominate race.

214. ***Chlorophoneus multicolor batesi*** Sharpe 1908 : R. Ja, Cameroons.

Specimens

1 ♂ 1 imm. ♂ Gabela, 16th Sept.

Systematic Notes

Moreau & Southern (1958) discuss colour variation in this and the following species of bush-shrike. The adult bird is in their " Yellow D " phase (p. 316) as are all others that were examined from north Angola : the young bird has yellow, not orange, underparts, light tips to the wing-coverts, light edges to the gape, and was noted as having a dark brown, not a deep purple, iris.

In their paper no mention was made of differences in size between Angola and Cameroon birds but later Moreau, examining specimens with me, found that those from Angola, including some borrowed from Chicago, have smaller bills. The bills of two from Gabela are particularly small (19, 20 mm.), four from further north in Angola have them slightly larger (20–21 mm.), while the bill in Cameroon birds is 21–23 mm. and deeper in proportion.

There is also a tendency for Angola birds to have the grey of the crown and hind neck more sharply demarcated from the mantle than in Cameroon birds, but this is not constant.

215. ***Chlorophoneus nigrifrons manningi*** (Shelley) 1899.

Specimen

1 imm. ♂ Luau R., 29th July.

Field Notes

Moreau and Southern (1958 : 308) found that the population of the Blackfronted Bush-Shrike in Northern Rhodesia was less restricted ecologically than others. This was confirmed by our specimen which was found not far from the river in light Brachystegia woodland, and not in forest, as is more usual.

217. ***Telephorus viridis*** (Vieillot) 1817.

Specimens

1 ♂ 1 ♀ Chingoroi, 9–10th Sept. Wing ♂ 90, ♀ 86 mm.

Field Notes

Both of Perrin's Bush-Shrikes were collected, one being netted, in thick undergrowth of the forest. The call was described as " not unlike a francolin call, cut off very short. When hopping about utters a sharp but muted ' chunk . . . chunk . . . chunk.' "

Systematic Notes

The race *T. v. vieiriae* White, was described from eastern Angola on slight differences in size and colour in comparison with the typical race, in particular on evidence of sexual dimorphism not believed to exist in birds of western Angola. Examination of the series in the British Museum shows that there are differences between the

sexes in both populations, the female always having the red and green of the throat and underparts paler and duller. Furthermore, these two birds are larger than those previously recorded from the west and similar in size to White's series. I can therefore see no grounds for recognizing *T. v. vieiriae.*

218. ***Malaconotus hypopyrrhus interpositus*** Hartert 1911 : 40 m. W. of Baraka, Lake Tanganyika.

Specimens

1 ♂ Luau R., 29th July : 1 ♀ 5 m. W. of Munhango, 9th Aug.

Systematic Notes

The taxonomy of the Grey-headed Bush-Shrike has been confused by differences of opinion on the correct use of *blanchoti* Stephens, *poliocephalus* (Lichtenstein), or *hypopyrrhus* (Hartlaub), as the specific name, and on the importance of an orange wash on the underparts, and of a white circle round the eye as taxonomic characters.

I follow Grant & Mackworth-Praed (1958 : 19) in using *hypopyrrhus* as the specific name, and follow Chapin (1954 : 42) in recognizing geographical as well as individual variation in the amount of orange wash on the underparts. I do not however, agree with Chapin's treatment of the Angola birds, all of which he calls *monteiri*, distinguishing them from *interpositus* of Rhodesia by the lack of any orange wash below on the majority of specimens. The white circle round the eye, characteristic of the type of *monteiri* (Sharpe), from near Luanda, and the type of *perspicillatus* (Reichenow) from Cameroon Mt. he considers an abnormal character of no taxonomic significance.

Other specimens with this character are from Dondo and Ndala Tando (in the British Museum), Gabela and " Bucaso " (in Chicago). With the exception of Cameroon Mt. and " Bucaso ", which has not been located, all these places are along or below the escarpment in north-western Angola, and all have riverine and escarpment forest rather than woodland. All other specimens examined from Angola in Chicago or London have been taken from above the escarpment in more predominantly woodland areas, and have the white on the face variable and restricted to areas between the eye and the bill, or on the lores.

There may thus be an ecological as well as morphological difference between the birds with the white ring and those without and, in my opinion, the name *monteiri* should be used only for those with this character. The race therefore has a restricted range in north-west Angola and possibly a discontinuous distribution north to Cameroon Mt. (see Serle 1954 : 72). The colour of the underparts of *monteiri* is variable, the Dondo and Ndala Tando specimens have an orange wash, the others being clear yellow.

All other specimens from Angola, without the eye-ring, I would include with *interpositus*, at least for the present, though noting that the orange wash commonly found in specimens in the east of the range becomes less frequent and less pronounced in specimens in the west.

In studying these shrikes I am indebted to Dr. A. L. Rand for a copy of his notes on the species and details of specimens in Chicago.

225. ***Neocichla g. gutturalis*** Bocage 1871 : Huila.

Specimens

2 ♂ 2 ♀ 48 m. SW. of Caconda, 28th Aug. (one in spirit).

Field Notes

For some distance along the Caconda-Quipungo road these Babbler-Starlings were common, flying up from the roadside into bushes and low branches when disturbed by the car. This was in the area of leafless Brachystegia-type woodland mentioned in the discussion on vegetation.

Systematic Notes

These are the first specimens of the nominate race in the British Museum. In comparison with *N. g. angusta* Friedmann, they seem to have the head and throat a paler, clearer grey as well as having larger white tips to the tail.

228. (a) ***Lamprotornis m. mevesii*** Wahlberg 1857 : Okavango, N. Bechuanaland.
(b) ***Lamprotornis mevesii benguelensis*** Shelley 1906 : Capangombe, S. Angola. (= *L. m. purpureus* auct.)

Specimens

(*a*) 1 ♂ 25 m. E. of Sá da Bandeira 4,900 feet, 27th Aug.: 1 ♂ 10 m. E. of Cahinde 3,000 feet, 6th Sept. (*b*) 1 ♀ 15 m. S. of Quilengues, 3,900 feet, 7th Sept.

Systematic and Field Notes

The two races of Long-tailed Starling are clearly differentiated in the blue or bronze sheen of the whole plumage and none of the specimens examined show signs of intergradation. The boundary between them seems interesting following the discussion on the three avifaunal zones in Angola, for the bronzy *L. m. benguelensis* seems to be restricted to what might be termed the southernmost tip of the Escarpment Zone, a narrow tongue of rather richer vegetation lying between one thousand and three thousand five hundred feet with the coastal semi-desert on the west and the Brachystegia woodland on the east. Specimens of *benguelensis* have been obtained at Catengue, near Chingoroi, Quilengues, Vila Arriaga and Capangombe. Quilengues lies more than halfway along the Sá da Bandeira to Chingoroi road which descends gradually with the vegetation becoming progressively richer and more varied northwards. Vila Arriago and Capangombe lie in fertile pockets at the base of the Chela escarpment but bordered westwards by the desert.

L. m. mevesii on the other hand has a widespread distribution in the Mopane belt from Nyasaland westwards, and it is confined in Angola to the less arid parts of the Acacia Zone. It has been collected at Jau, Humbe, Chipopia, Mulondo and Mupa. The specimen collected east of Cahinde was one of a number seen on the road down the escarpment, where there was a light covering of mixed bush and stunted

trees including Mopane. Although Cahinde lies like Capangombe at the foot of the escarpment, and is only forty miles south, it has not the same rich vegetation and the associations of all species collected there are with the Acacia Zone.

It should be noted that some of the specimens collected by Monard (1954 : 83, 84) were examined with Captain Grant in 1957 through the kindness of the Director of the Musée d'Histoire Naturelle, Chaux de Fonds. Those from Mupa and Mulondo identified as *purpureus* were found to be *L. m. mevesii*, and samples of those identified as *mevesii* were found to be *L. australis*.

231. (a) ***Zosterops senegalensis quanzae*** de Schauensee 1932 : Upper Cuanza R.
(b) ***Zosterops senegalensis heinrichi*** Meise 1958 : Canzele, Cuanza Norte.
(c) ***Zosterops senegalensis quanzae ≳ anderssoni*** Shelley.

Specimens

(*a*) 1 Mt. Moco 6,500 feet, 15th Aug.: 1 ♀ 25 m. N. of Quipeia, 14 Aug. (*b*) 1 ♀ 12 m. S. of Gabela, 19th Sept.: 1 ♂ 28 m. N. of Vila Luso, 8th Aug. (*c*) 1 ♂ Leba, 30th Aug.

Systematic Notes

Identifications have been made on the basis of Moreau's paper (1957). These specimens have interest in filling some of the gaps that were then noted. The Moco and Quipeio birds have the characteristic dull colouring and large size (wing 65, 62) of typical *quanzae*. The Gabela and Vila Luso birds are a shade brighter, particularly on the throat and tail-coverts, and the Gabela bird on the forehead. They are close to, but a little more olive than, the Ndala Tando birds quoted by Moreau which have since been named *heinrichi*.

The Leba bird is altogether brighter below, matching in this respect a topotypical *anderssoni* from Elephant Vley, but being rather darker above and larger (wing 61).

232. ***Nectarinia kilimensis gadowi*** Bocage 1893 : Galanga, Benguela dist.

Specimens

1 ♂ Vila Flor, 13th Aug.: 9 ♂ 1 imm. ♂ 1 ♀ Mt. Moco 6,000–7,000 feet, 15–21st Aug.: 1 ♂ 2 imm. ♂ 1 ♀ 1 imm. Nova Lisboa, 13–14th Aug.

Field Notes

This sunbird was common on Mt. Moco at all levels, feeding on *Erythrina* and *Loranthus*. Stomach contents included spiders, *Coleoptera*, *Diptera*, and hover-flies. Its call was noted as being exactly like that of the nominate race.

233. ***Nectarinia bocagei*** Shelley 1879 : Caconda, Huila dist.

Specimens

1 ♀ 3 imm. ♀ near Vila Flor, 13–14th Aug.: 1 ♂ near Luimbale, 25th Aug.

Field Notes

Bocage's Sunbird was rare. It was once found feeding on *Erythrina* with *Cinnyris oustaleti* and *Chalcomitra senegalensis*, and once on red *Loranthus* in Brachystegia woodland.

237. ***Cinnyris o. oustaleti*** (Bocage) 1878 : Caconda, Huila dist.

Specimens

1 ♀ 1 imm. ♀ Nova Lisboa, 12th Aug.: 1 ♂ 43 m. W. of Vouga, 12th Aug.: 2 ♂ 1 imm. ♀ near Vila Flor, 13–26th Aug.: 4 ♂ 1 juv. Mt. Moco 6,000–6,500 feet, 15–24th Aug. 1 imm. ♀ near Luimbale, 25th Aug.

Field Notes

Found feeding on orange-red gladiolis in the Brachystegia woodland on Moco, and on *Albizia* trees at Luimbale. Its food contained seeds, spiders, beetles and Lepidoptera larvae.

Systematic Notes

The seven males, including one in which the skull was not fully ossified, are fairly uniform in appearance with a few metallic feathers on the head and mantle and the metallic plumage below confined to the centre of the throat and chest. In four of the specimens sheath feathers of metallic plumage were found on the chest and mantle ; in three, including the immature bird, the wings and tails are in moult, in the others they are fresh. The adult female is moulting wings and mantle. Williams (1955) discusses the moults and plumages of this species, finding that the moult from eclipse to metallic plumage is complete, including wings and tail, but that the wings and tail are not moulted after breeding. It would seem therefore that the males collected are moulting into breeding dress.

The finding of these males concurrently with young birds with skulls 10 % or 20 % ossified suggests a protracted breeding season.

The identification of the juvenile from Moco is not certain, no comparable specimens being available.

246. (a) ***Anthreptes collaris somereni*** Chapin 1949 : Anda, Lake Azingo, Gaboon.

(b) ***A.c. phillipsi*** White 1950 : Lofu R., N. Rhodesia.

Specimens

(*a*) 1 ♂ 1 ♀ 12 m. S. of Gabela, 15–16th Sept. (*b*) 1 ♂ 1 ♀ Luau R., 27–29th July ; 1 imm. ♂ 1 imm. ♀ Lake Dilolo, 5th Aug. 1 ♂ 45 m. W. of Vila Luso, 8th Aug.

Systematic Notes

The adult female from the Luau River has the grey throat and chest characteristic of *phillipsi* well marked. The Gabela pair have been identified as *somereni* on locality. In colour they seem indistinguishable from *zambesiana* (Shelley), though they are smaller. Both are bright clear yellow below, without much olive wash on the flanks, and the female has a pale whitish-yellow throat. Comparison between *somereni* and *zambesiana* is a little difficult on available skins in the British Museum since most of those of *somereni* are small, rather pinched skins which exaggerate the dusky flanks and hide the clear yellow of the tummy ; most of those of *zambesiana*, and the Gabela pair, are well filled-out skins which show off the yellow. It seems that there may not be such clear-cut differences between the two races as appears from this series.

252. ***Passer griseus griseus*** (Vieillot) 1817.

Specimen

1 ♂ 12 m. S. of Gabela, 17th Sept. Wing 78, bill 15 mm.

Field and Systematic Notes

See next Species.

253. ***Passer diffusus georgicus*** Reichenow 1904 : Damaraland.

Specimen

1 ♀ Leba, 31st Aug. Wing 78, bill 13·5 mm.

Field and Systematic Notes

The relationship between the two forms of grey-headed sparrow found in coastal Angola has been discussed by Benson (1956) and by White & Moreau (1958), and the authors differ in their views as to whether the two forms can be regarded as conspecific. The two specimens collected conform with Benson's conclusions on the ecological segregation of the forms in western Angola, since the male *griseus* was obtained in the vicinity of native huts in a clearing in the coffee forest, while the female *diffusus* was found in a mountain valley some distance from habitation.

The Leba bird, like others of *diffusus* from Angola, noted by White & Moreau, is small and its bill is horn-coloured, paler below, with a yellow gape. The Gabela *griseus* is also short-winged in comparison with other Angola specimens noted, but has a heavy bill which is black.

257. ***Ploceus temporalis*** (Bocage) 1880.

Specimens

1 ♂ 1 (with nest), Saiangikilo R., 40 m. W. of Munhango, 9th Aug. Wing 81–84 ; bill 19 ; tail 44–45 mm. Bill black ; legs pale reddish-horn ; iris cream.

Field Notes

This rare weaver was only encountered once at a place where the road crossed the river in the centre of an open dambo. The nest, which is unused, was hung in elephant grass beside the river. (Plate 5 B, and 6).

Nest. The nest has been examined by Professor and Mrs. N. E. Collias of the University of California, particularly in respect of the possible relationship of *P. temporalis* with *P. capensis*. I am grateful to them for the following comments, and for the photograph.

" The nest is typically ploceine in its use of green, more or less flexible and interwoven materials. It is a typical *Textor* (*Ploceus*) nest in its ovoidal shape, pensile attachment, ventral entrance, and presence of a special ceiling put in before the nest is lined below. The nest you sent us is unlined and apparently never contained eggs. It belongs to the same size class as nests of *Textor cucullatus*, *T. spekei* and *T. capensis* and not to the size class of nests of the smaller *Textors*.

" The nest has one specialized feature, unique so far as we know, among nests of the Plocinae. This is the extensive use, for construction of the outer shell, of grass culms from which the flowering tops have apparently been snipped off.

" But on the whole the nest is a primitive one for a Textor, in various ways : loose, untidy weaving, use of grass stems in the outer shell, loose fastenings of individual pieces of nest material as well as loose attachments to the support, irregular ceiling of narrow sections of leaf blade, absence of longitudinally-stripped pieces of leaf blade, and in the occasional presence in the ceiling of grass heads (identified as *Pennisetum* for us by our Botany Department).

" In many of these features the nest resembles most closely that of *Textor spekei* of East Africa. However, the poor ceiling of narrow bits of grass blade seemed to us to be most like that of a young male *T. cucullatus*. In the presence of grass heads in the ceiling it resembles the nests of *Othyphantes*, *Textor rubiginosa* and *Textor xanthops* ; however, it lacks the abundance of grassheads that is found in the ceiling of these weavers.

" The nest of *Ploceus temporalis* does not seem to us to closely resemble the one nest of *Textor capensis* that we have been able to examine closely . . . This *capensis* nest had the outer shell built of grass leaf strips and palm strips rather than grass stems. It had the ceiling made not only of broad (1 cm.) grass-leaf sections but also of pine needles and cypress branchlets. We recognize, of course, that a nest is only one clue to the taxonomic affinities of birds."

Systematic Notes

Having regard to Professor Collias's comments on the differences between the nests of *P. capensis* and *P. temporalis* as well as to the differences in the bills of the two forms, I do not feel that *temporalis* should be regarded as a race of *capensis*, at least until more is known of its field characters.

The unsexed specimen is a good match with the plate in Shelley (1905 : pl. 41) ; both from its size and colour there is little doubt that it is also a male. The other specimen differs in having the olive of the ear-coverts extending on to the chin

and centre of the throat making a tongue of dark colour sharply defined from the yellow of the underparts.

258. ***Ploceus xanthops*** (Hartlaub) 1862: "Angola" = Lower Cuanza River (see below).

Specimens

1 ♂ 2 ♀ Mt. Moco 6,000–7,000 feet, 15–22nd Aug. 2 ♂ Leba, 30th Aug.–3rd Sept. 1 ♀ Chingoroi, 8th Sept.

Systematic Notes

The type locality of *Ploceus xanthops* is given only as "Angola." The original description however is among notes on a small collection made by Monteiro of birds from the coastal areas of north Angola. Definite localities are given for other species, either Cuanza River, Cambambe or Massangano, while the weaver is noted as being "common everywhere . . . particularly over water." It seems that the type locality can therefore be usefully restricted to the Lower Cuanza River and specimens collected from Luanda, Dondo and Vila Salazar can be considered as typical.

This is important since examination of skins in the British Museum, and some from Chicago, show that there is considerable geographical variation within Angola, particularly in the females. The variation is particularly interesting since it follows exactly that found in the Zosterops of Angola. Specimens of typical *xanthops* in the north are rather a yellow green matching the Zosterops described by Moreau (1957: 372) as intermediates between *Z. s. kasaica* and *Z. s. quanzae* and since named as *heinrichi* Meise (1958: 80). Those of the Benguela highlands are a darker and duller green, matching *Z. s. quanzae*, while those of the south are brighter, more washed with yellow as is *Z. s. anderssoni*.

When specimens of *Ploceus xanthops* from the rest of Africa were examined, including some borrowed from Pretoria, it was found that this variation in Angola represented the extremes of variation in colour found throughout the continent. The populations of north-eastern Africa, which have sometimes been separated as *camburni* (Sharpe), are brighter and more yellow than typical *xanthops* but similar to the southern birds. The populations of southern Africa, *jamesoni* (Sharpe), are very slightly greener and duller than typical *xanthops* with usually slightly less suggestion of dark streaks on the mantle but not so green or dull as the highland birds of Angola. Most specimens from central Africa match typical *xanthops*, but occasional birds, nearly all of which are from highlands of either southern Tanganyika or Nyasaland, are dull and green, very close to the highland birds of Angola. This is again consistent with Moreau's findings on dark populations of Zosterops at higher altitudes (loc. cit.: 370).

In view of the sporadic distribution of darker and brighter populations it is difficult to see how any races can be recognized on colour differences. In size the wing measurements of all males examined are between 86 and 96 mm. and all females

between 80 and 92 mm. with the exception of three from Maun and Lake Ngami, the male of which has a wing of 102 and the females 92 and 94. The name *maunensis* (Roberts), was given to birds from Maun and from the Chobe River ; the latter are no larger than typical *xanthops* so that if *maunensis* is to be considered distinct from *xanthops* it must be restricted to Lake Ngami. In my opinion it is hardly consistent in an admittedly variable species to single out the characters of this one population for recognition by name.

The following table shows that there are other local variations in size but none of any significance. An attempt has also been made in the table to indicate the colour variation in the populations though it must be appreciated that there is also considerable individual variation particularly in the amount of yellow on the forehead of males.

TABLE.—*Populations of* Ploceus xanthops

Area			Wing length ♂	Wing length ♀	Colour
(1) Angola, north	12 ♂	7 ♀	86–93	80–85	Yellow green.
(2) ,, highlands	3 ♂	5 ♀	90–91	82–89	Dull green.
(3) ,, south	10 ♂	6 ♀	88–94	81–90	Bright yellow green.
(4) N. Rhodesia and S. Belgian Congo	10 ♂	7 ♀	92–96	84–90	As (1) or between (1) and (3).
(5) Nyasaland and northern P.E.A.	27 ♂	26 ♀	88–95	84–90	As (1), occasionally near (2).
(6) S. Tanganyika (highlands)	2 ♂	5 ♀	90–92	86–88	Slightly paler than (2).
(7) Rest of Tanganyika	9 ♂	3 ♀	90–97	88–89	As (3).
(8) Kenya and Uganda	21 ♂	12 ♀	91–97	86–92	As (3), occasionally near (2).
(9) P.E.A. and S. Rhodesia	5 ♂	3 ♀	89–94	84–92	Between (1) and (2), slightly less streaky.
(10) Southern Africa	4 ♂	4 ♀	90–94	84–91	As (9).
(11) Chobe R. and Caprivi	3 ♂	4 ♀	93–94	85–89	As (9).
(12) Lake Ngami	1 ♂	2 ♀	102	92–94	As (1).

264. ***Euplectes aurea*** Gmelin 1789.

Specimen

1 ♂ 12 m. E. of Benguela, 12th Sept.

Systematic Notes

This male is in very fresh non-breeding dress ; it appears identical in plumage with females.

Cryptospiza r. reichenovii (Hartlaub) 1874

Specimens

1 ♂ 1 ♀ 1 imm. ♂ 12 m. S. of Gabela, 17–18th Sept.

Field Notes

Heinrich also found the Crimson-wing in the forest of Gabela but it has not been recorded from elsewhere in Angola. That it should be found here, and not in the montane forest on Moco, is surprising since it is more usually a mountain bird, being found on Cameroon Mountain and the highlands from Ruwenzori to Mashonaland, though descending to the coastal plain at Amani.

Systematic Notes

Chapin (1954 : 486) notes the difficulties of distinguishing between the races of this species. From examination of the series in the British Museum the only geographical variation apparent is that the breasts and abdomens of all specimens from the Cameroons, Ruwenzori, Mufumbiro Volcanoes and Angola are more washed with orange, less green, than in specimens from Tanganyika, Nyasaland and Portuguese East Africa. I would recognize therefore only the two races *C. r. reichenovii* and *C. r. australis* Shelley.

281. ***Clytospiza c. cinereovinacea*** (Sousa) 1889 : Quindumbo, Benguela dist.

Specimens

3 ♂ 1 ♀ 3 imm. 1 juv. ♂ Mt. Moco 6,000–7,000 feet, 15–24th Aug. (and one in spirit).

Field Notes

This Twin-spot was found to be common on Mt. Moco at all levels, in the long grass of the steep mountain gullies along with *Cisticola emini*.

283. (a) ***Estrilda astrild niediecki*** Reichenow, *Orn. Mon.* 24, p. 168, 1916 : Namwala, NW. Rhodesia.

(b) ***E. astrild angolensis*** Reichenow 1902 : Malanje.

Specimens

(*a*) 1 ♂ Vouga, 11th Aug. (*b*) 1 ♂ 1 Mt. Moco 6,000 feet. Wing (*a*) 1 ♂ 50. (*b*) 1 ♂ 49 : tail (*a*) 1 ♂ 51, (*b*) 1 ♂ c. 42 (moult) 41 mm.

Systematic Notes

The Vouga Ruddy Waxbill has light barring and a long tail and is readily identified with the race *niediecki* (synonym *ngamiensis* Roberts) of Barotseland and Bechuanaland rather than with the short-tailed, heavily barred *angolensis*. This represents a considerable extension to the known range of the southern race.

299. ***Fringillaria capensis nebularum*** Rudebeck, *Bull. B.O.C.* 78, p. 129, 1958 : Lucira, 130 m. N. of Moçamedes.

Specimen

1 ♀ Leba, 1st Sept.

Systematic Notes

This specimen was found to match well with the type series of the new Angola race.

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APPENDIX 1

Collecting Localities in Angola Outside the Route of the Expedition

Finding the exact location of many collecting localities in Angola has been made difficult over the last fifty years by changes of names for many of the principal towns, changes of provincial boundaries, and changes of spelling. Furthermore, maps are variable and frequently inaccurate and the same name may have been

given to several places. In working on the birds of Angola the following works have been particularly useful in plotting distribution combined with the Carta de Angola, published by the Junta das Missões Geográficas e de Investiyações do Ultramar, 1956, scale 1/2,000,000.

Chapin 1954 : 639–738.
Heinrich 1958 : 135.
Monard 1934 : 5–6.
Reichenow 1902 (for all old names).
Gazeteer No. 20, United States Board on Geographic Names, Angola 1956.

In the list that follows of places in Angola mentioned in this paper outside the route of the expedition, the latitude and longitude have been taken from one or other of these sources, the spelling from the U.S. Gazeteer, and the districts as marked on the 1956 map.

Places in Angola Mentioned in the Paper Outside the Route of the Expedition

Ambaca = Camabatela.
Amboim = Gabela (not Porto Amboim).

Bailundo = Texeira da Silva.
Bailundo highlands ; surrounding highlands, west to Mt. Moco.
Biballa = Vila Arriaga, Moçamedes.
Bucosa—not located.
Bulabula plains = Vouga plains.

Cabeça de Ladroes	13° 16′ S. ; 14° 15′ E.	Benguela.
Camabatela.	8° 30′ S. ; 15° 15′ E.	Cuanza Norte.
Cambambe.	9° 30′ S. ; 14° 30′ E.	Cuanza Sul.
Canhoca.	9° 15′ S. ; 14° 41′ E.	Cuanza Sul.
Canzele.	8° 17′ S. ; 15° 11′ E.	Cuanza Norte.
Capangombe.	15° 05′ S. ; 13° 08′ E.	Moçamedes.
Cassongue.	11° 53′ S. ; 15° 02′ E.	Cuanza Sul.
Catengue.	13° 02′ S. ; 13° 46′ E.	Huila.
Catumbela.	12° 25′ S. ; 13° 34′ E.	Benguela.
Chela escarpment.	W. of Sá da Bandeira, Huila/Moçamedes border.	
Chipepe.	12° 02′ S. ; 14° 55′ E.	Cuanza Sul.
Chipopia.	14° 53′ S. ; 15° 02′ E.	Huila.
Dondo.	9° 38′ S. ; 14° 25′ E.	Cuanza Sul.
Duque de Bragança.	9° 06′ S. ; 15° 57′ E.	Malanje.
Galanga.	12° 04′ S. ; 15° 08′ E.	Benguela.
Hanha.	13° 18′ S. ; 14° 10′ E.	Benguela.

Huambo = Nova Lisboa.

Humbe.	16° 40′ S. ; 14° 55′ E.	Huila.
Humpata.	15° 02′ S. ; 13° 24′ E.	Huila.

Huxe = Uchi.

Jau.	15° 12′ S. ; 13° 31′ E.	Huila.

Lebule = Sandula.			
Lucira, 130 m. N. of Moçamedes.			
Luimbale.	12° 15′ S. ;	15° 19′ E.	Huambo.
Lunda district, North-east Angola.			
Luando R.			Malanje.
Macondo.	12° 35′ S. ;	23° 44′ E.	Moxico.
Malanje (Malange).	9° 30′ S. ;	16° 20′ E.	Malanje.
Manyinga R. Macondo.			Moxico.
Massangano.	9° 37′ S. ;	14° 15′ E.	Cuanza Norte.
Missao de Lus, Vila Luso.			Moxico
Mombolo plateau.	11° 47′ S. ;	14° 33′ E.	Cuanza Sul.
Mt. Soque.	12° 21′ S. ;	15° 02′ E.	Benguela.
Mulondo.	15° 40′ S. ;	15° 15′ E.	Huila.
Mupa.	16° 15′ S. ;	15° 40′ E.	Huila.
Ndala Tando = Vila Salazar.			
Ngara (Negara).	11° 23′ S. ;	14° 11′ E.	
Pungo Andongo.	9° 40′ S. ;	15° 35′ E.	Malanje.
Que R.	14° 30′ S. ;	14° 30′ E.	Huila.
Quela.	9° 16′ S. ;	17° 02′ E.	Malanje.
Quiculungo.	8° 31′ S. ;	15° 19′ E.	Cuanza Norte.
Quindumbo.	12° 28′ S. ;	15° 03′ E.	Benguela.
Roça Congulu.	10° 41′ S. ;	14° 14′ E.	Cuanza Sul.
Sandula.	12° 15′ S. ;	15° E.	Cuanza Sul/Huambo border.
Saurimo.	9° 39′ S. ;	20° 24′ E.	Lunda.
Silva Porto (Bihe).	12° 22′ S. ;	16° 56′ E.	Bié.
Texeira da Silva.	12° 12′ S. ;	15° 52′ E.	Huambo.
Uchi.	12° 40′ S. ;	13° 23′ E.	Benguela.
Vila Arriaga.	14° 46′ S. ;	13° 21′ E.	Moçamedes.
Vila da Ponte (Vila Artur de Paiva).	14° 28′ S. ;	16° 20′ E.	Huila.
Vila Salazar.	9° 18′ S. ;	14° 54′ E.	Cuanza Norte.

PLATE 5

A. Escarpment at Leba. Habitat of *Xenocopsychus ansorgei.*
B. Dambo 40 miles west of Munhango, with nests of *Ploceus temporalis.*

PLATE 6

Nest of *Ploceus temporalis* (Photo. N. E. Collias)

A

B